CCD-TR530E/TR550E/TR570E/TR650E/TR750E
RMT-708

SERVICE MANUAL

AEP Model
CCD-TR530E/TR550E/TR650E/TR750E
UK Model
CCD-TR530E/TR550E/TR650E/TR750E
E Model
CCD-TR550E/TR500E/TR750E
Australian Model
CCD-TR550E/TR750E
Tourist Model
CCD-TR570E/TR750E

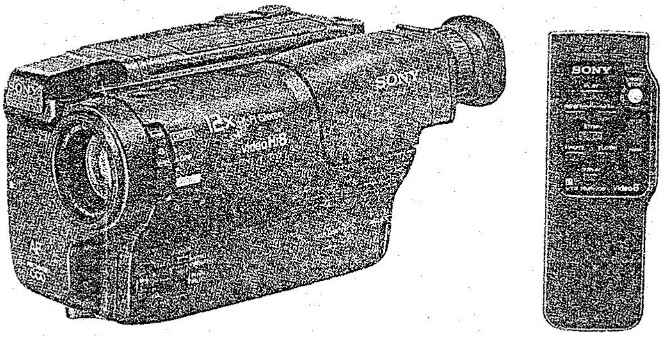


Photo : CCD-TR650E

Handycam

A MECHANISM

We will inform you of the electrical adjustment of the color view finder in the future.

In this service manual, board names will be different for each model and indicated as follows.

	TR570E/TR650E/TR750E	TR530E/TR550E
VS BOARD	VS-104 BOARD	VS-112 BOARD
PJ BOARD	PJ-61 BOARD	PJ-64 BOARD
DD BOARD	DD-60 BOARD	DD-60 BOARD
	TR650E/TR750E	**TR530E/TR550E/TR570E**
VC BOARD	VC-138 BOARD	VC-145 BOARD

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅳ" (9-973-199-11).

SPECIFICATIONS

System

Video recording system
Two rotary heads, Helical scanning, FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8 mm video format cassette (Hi8 or standard 8 mm)
Tape speed
SP mode: Approx. 20.051 mm (13/16 in)/second
LP mode: Approx. 10.058 mm (13/32 in)/second
Recording time
SP mode: 1 hour and 30 minutes (E5/P5-90)
Playback time
SP mode: 1 hour and 30 minutes
LP mode: 3 hours (E5/P5-90)
Fastforward/rewind time
Approx. 6 min. 30 sec. (E5/P5-90)

Image devide
CCD (Charge Coupled Device)
Viewfinder
Electronic viewfinder (black and white)
Lens
See the table on the next page.
Focal distance
6.5 – 78 mm (9/32 – 3 1/8 inches) when recording
47 – 564 mm (1 7/8 – 22 1/4 inches) when converted into a 35 mm still camera
Colour temperature
Auto
Minimum illumination
See the table on the next page.
Illumination range
See the table on the next page.
Recommended illumination
More than 100 lx

Input and Output connectors

S video output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω, unbalanced, sync negative
Chrominance signal: 0.3 Vp-p, 75 Ω, unbalanced
Video output
Phono jack, 1 Vp-p, 75 Ω, unbalanced, sync negative
Audio output
Phono jacks (2 stereo L and R), –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

— Continued on next page —

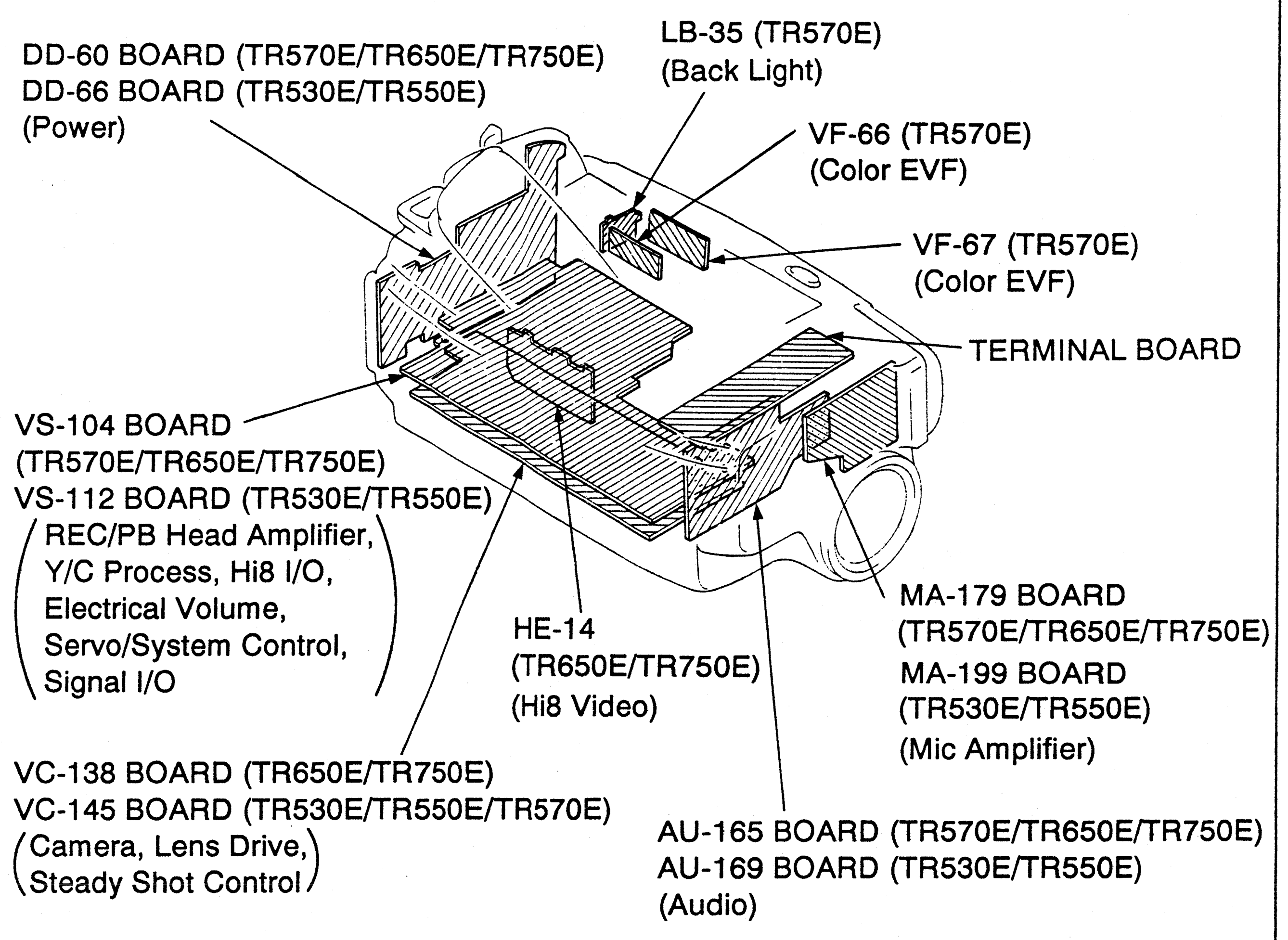
8 VIDEO CAMERA RECORDER
CCD-TR530E/TR550E/TR570E

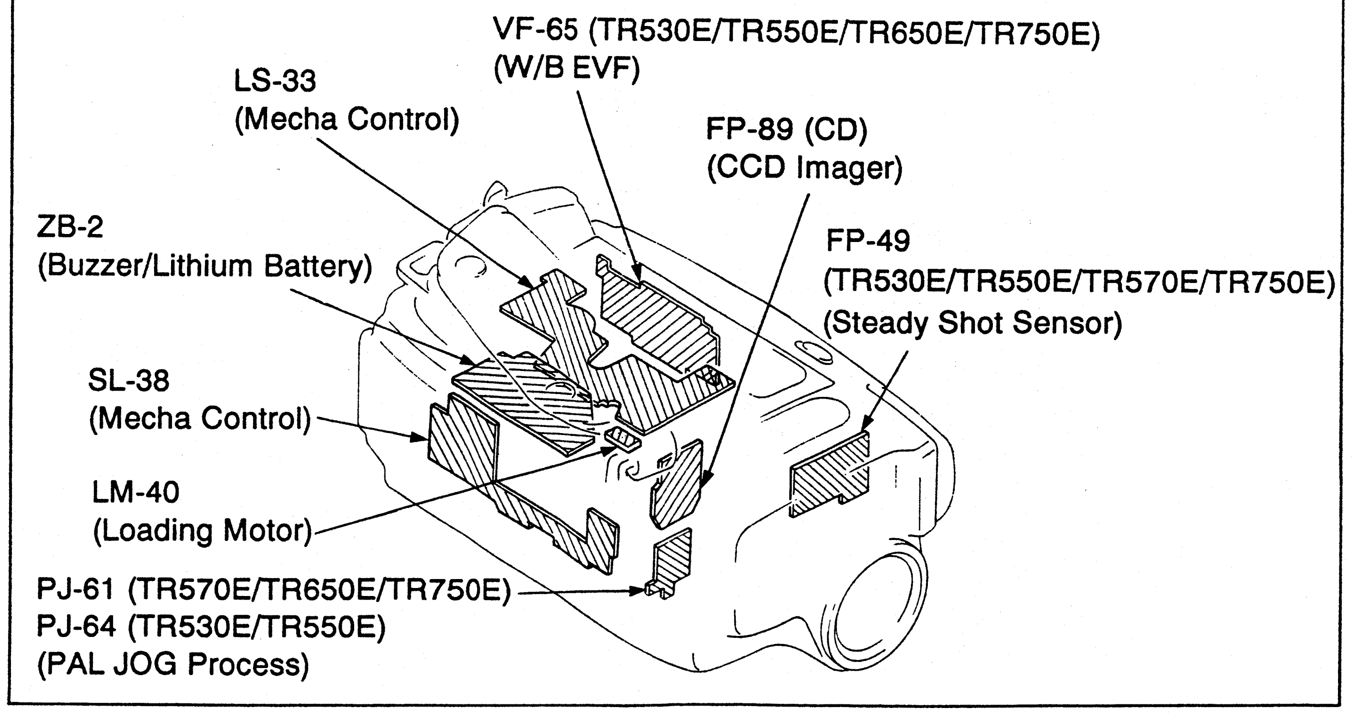
Hi8 VIDEO CAMERA RECORDER
CCD-TR650E/TR750E

SONY®

MICROFILM

2-14. CIRCUIT BOARDS LOCATION

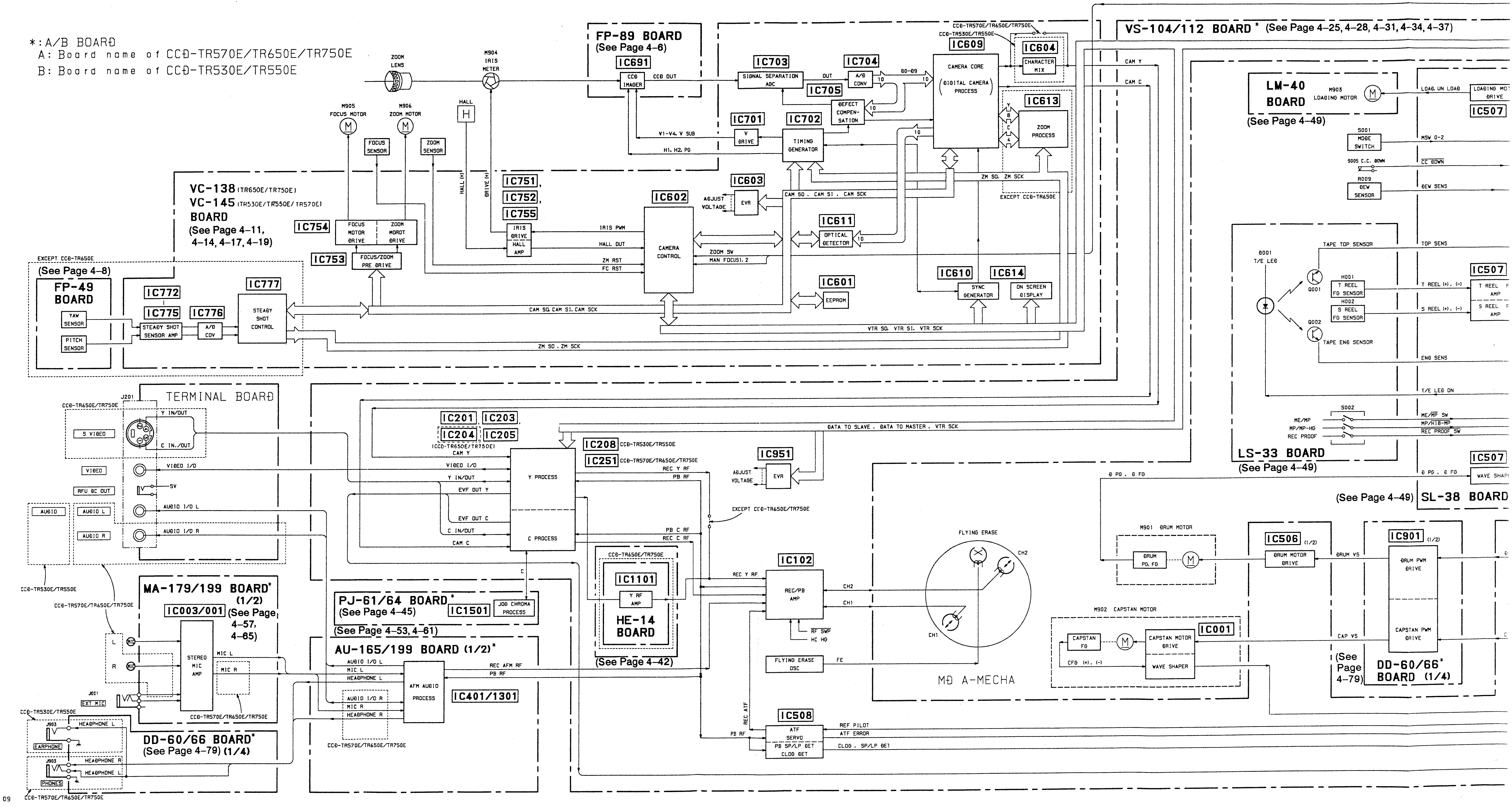

DD-60 BOARD (TR570E/TR650E/TR750E)
DD-66 BOARD (TR530E/TR550E)
(Power)
LB-35 (TR570E)
(Back Light)
VF-66 (TR570E)
(Color EVF)
VF-67 (TR570E)
(Color EVF)
TERMINAL BOARD
VS-104 BOARD
(TR570E/TR650E/TR750E)
VS-112 BOARD (TR530E/TR550E)
(REC/PB Head Amplifier, Y/C Process, Hi8 I/O, Electrical Volume, Servo/System Control, Signal I/O)
HE-14
(TR650E/TR750E)
(Hi8 Video)
MA-179 BOARD
(TR570E/TR650E/TR750E)
MA-199 BOARD
(TR530E/TR550E)
(Mic Amplifier)
VC-138 BOARD (TR650E/TR750E)
VC-145 BOARD (TR530E/TR550E/TR570E)
(Camera, Lens Drive, Steady Shot Control)
AU-165 BOARD (TR570E/TR650E/TR750E)
AU-169 BOARD (TR530E/TR550E)
(Audio)


VF-65 (TR530E/TR550E/TR650E/TR750E)
(W/B EVF)
LS-33
(Mecha Control)
FP-89 (CD)
(CCD Imager)
ZB-2
(Buzzer/Lithium Battery)
FP-49
(TR530E/TR550E/TR570E/TR750E)
(Steady Shot Sensor)
SL-38
(Mecha Control)
LM-40
(Loading Motor)
PJ-61 (TR570E/TR650E/TR750E)
PJ-64 (TR530E/TR550E)
(PAL JOG Process)

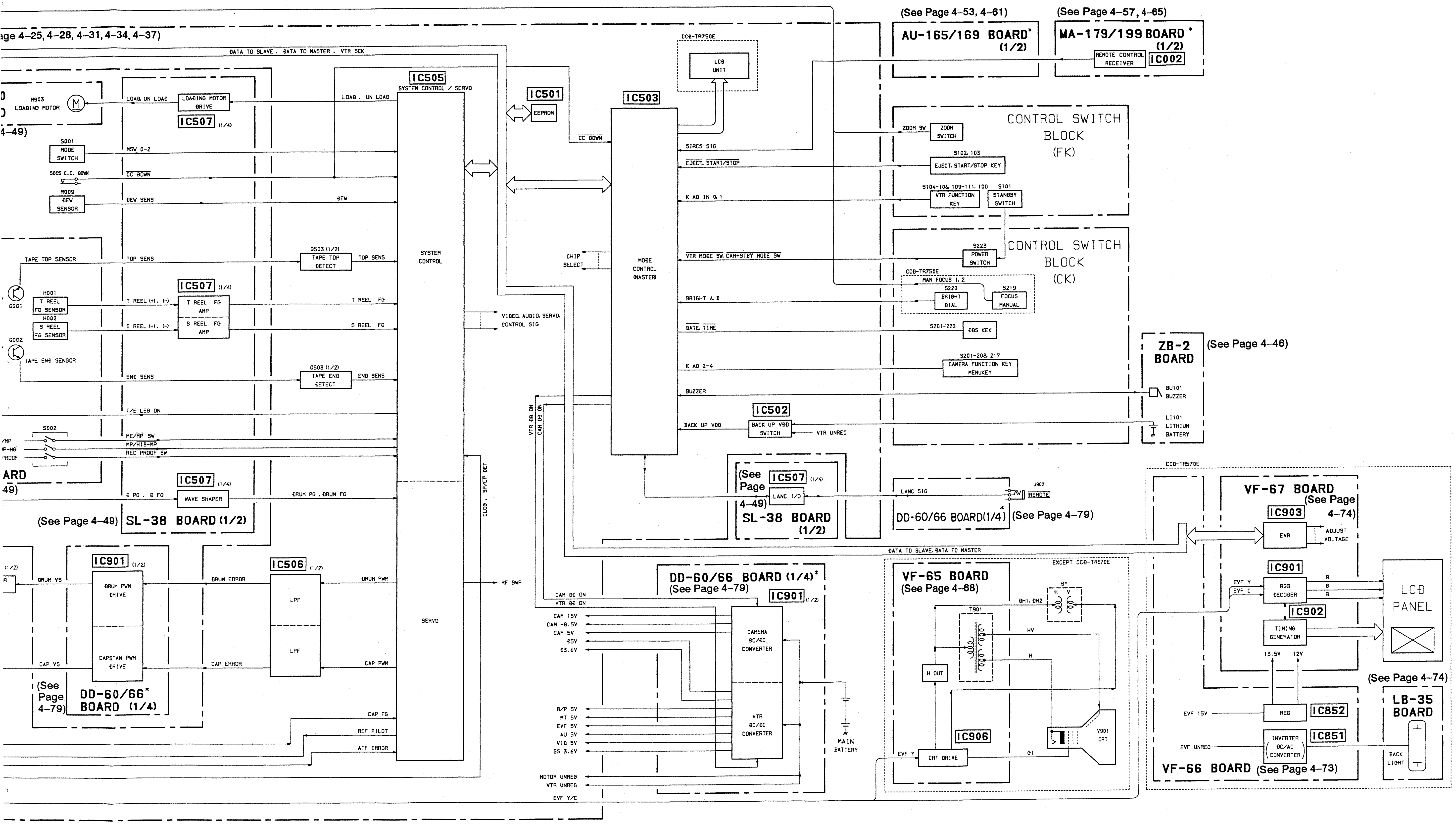
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

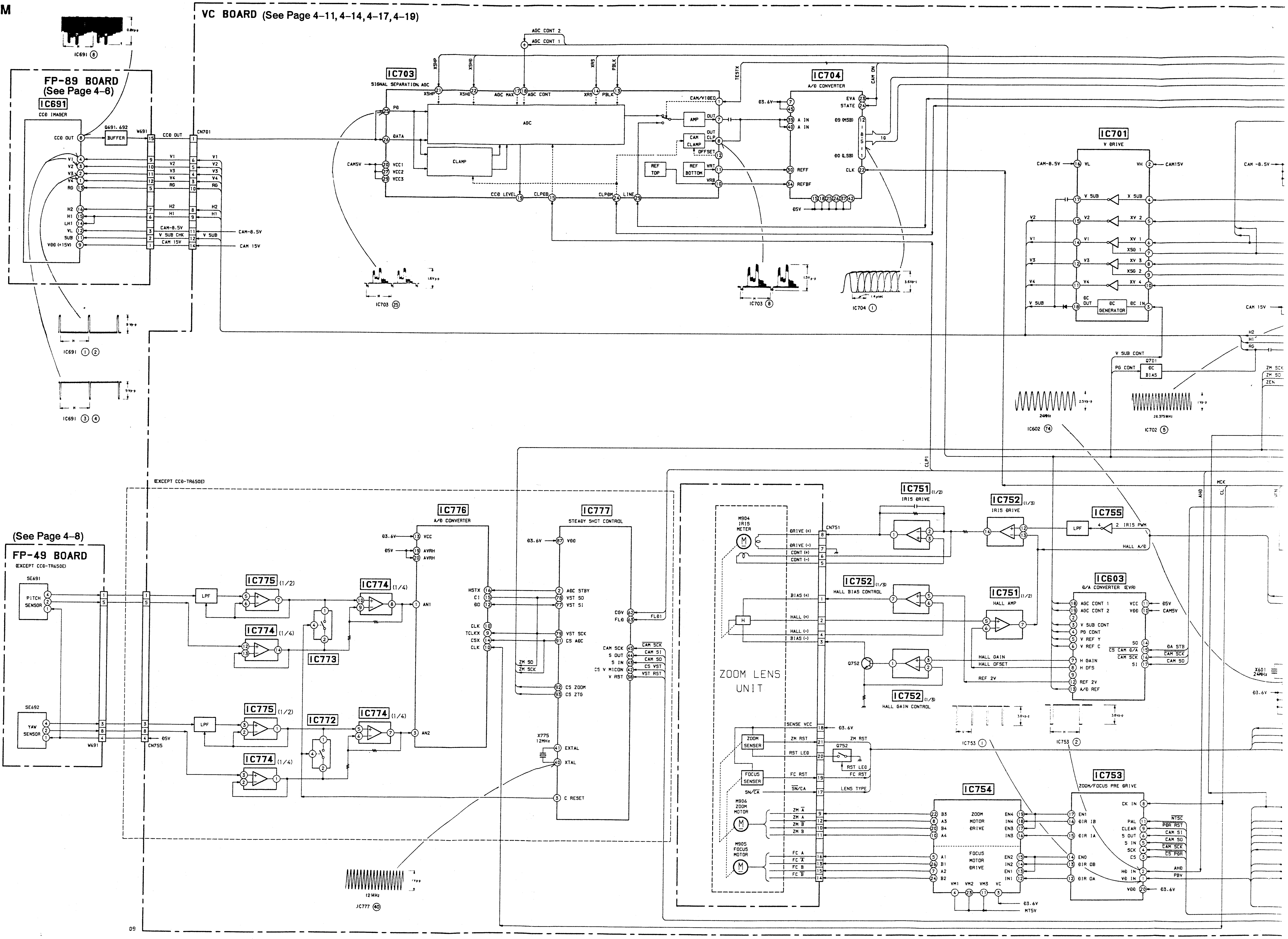
*: A/B BOARD
A: Board name of CCD-TR570E/TR650E/TR750E
B: Board name of CCD-TR530E/TR550E

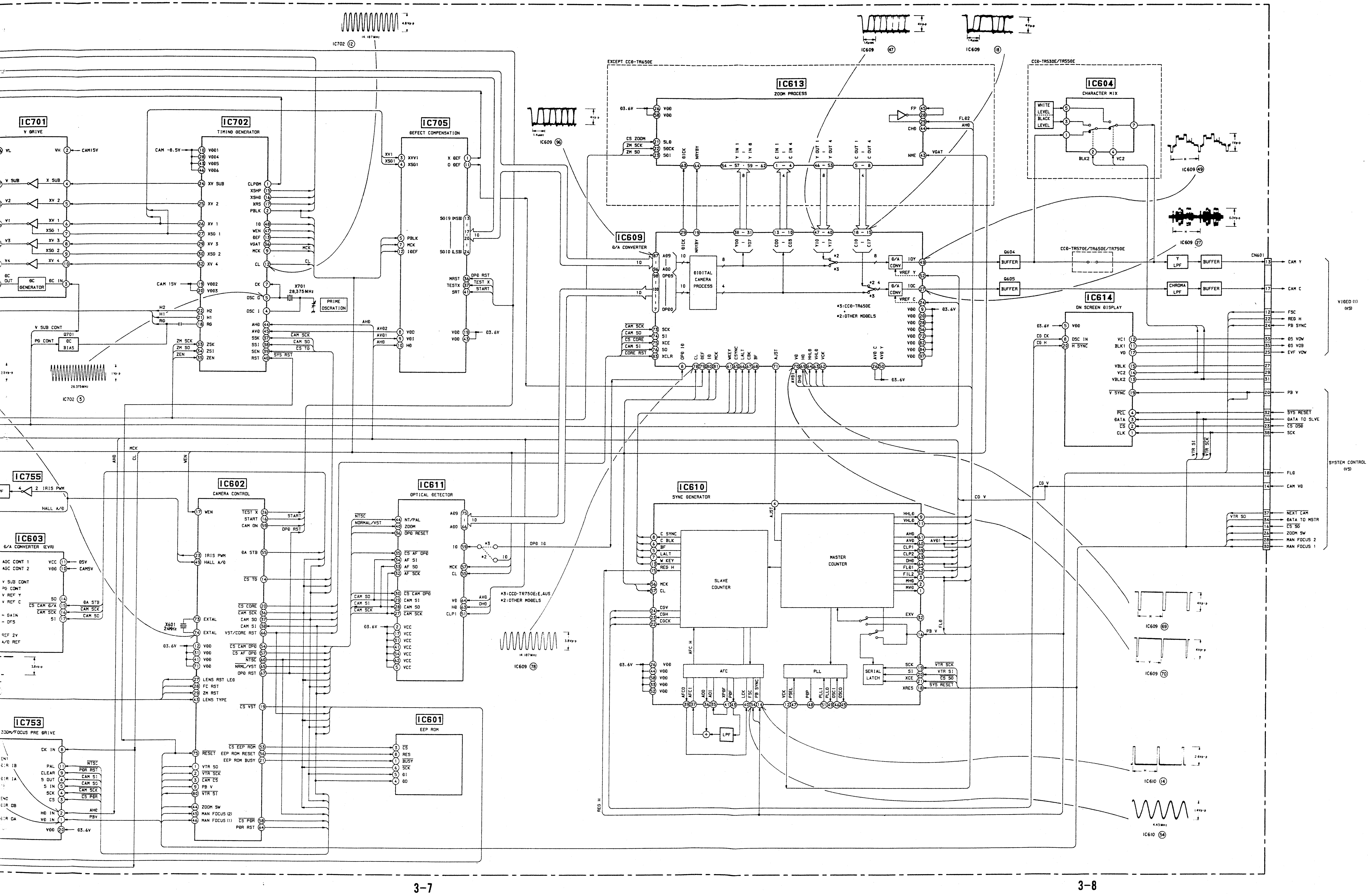


FP-89 BOARD (See Page 4-6)
IC691 CCD IMAGER
CCD OUT
ZOOM LENS
M904 IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
FOCUS SENSOR
ZOOM SENSOR
IC703 SIGNAL SEPARATION AGC
IC704 A/D CONV
IC705
DEFECT COMPEN-SATION
IC701 V DRIVE
IC702 TIMING GENERATOR
V1-V4, V SUB
H1, H2, PG
IC609 CAMERA CORE (DIGITAL CAMERA PROCESS)
CCD-TR570E/TR650E/TR750E
CCD-TR530E/TR550E
IC604 CHARACTER MIX
IC613 ZOOM PROCESS
EXCEPT CCD-TR650E
ZM SO, ZM SCK
CAM SO, CAM SI, CAM SCK
VC-138 (TR650E/TR750E)
VC-145 (TR530E/TR550E/TR570E)
BOARD
(See Page 4-11, 4-14, 4-17, 4-19)
IC751, IC752, IC755
IRIS DRIVE
HALL AMP
IC754
FOCUS MOTOR DRIVE
ZOOM MOROT DRIVE
IC753 FOCUS/ZOOM PRE DRIVE
IC602 CAMERA CONTROL
IRIS PWM
HALL OUT
ZM RST
FC RST
IC603 EVR
ADJUST VOLTAGE
ZOOM SW
MAN FOCUS1, 2
IC611 OPTICAL DETECTOR
IC601 EEPROM
IC610 SYNC GENERATOR
IC614 ON SCREEN DISPLAY
VTR SO, VTR SI, VTR SCK
EXCEPT CCD-TR650E
(See Page 4-8)
FP-49 BOARD
YAW SENSOR
PITCH SENSOR
IC772
IC775 STEADY SHOT SENSOR AMP
IC776 A/D COV
IC777 STEADY SHOT CONTROL
VS-104/112 BOARD* (See Page 4-25, 4-28, 4-31, 4-34, 4-37)
CAM Y
CAM C
LM-40 BOARD (See Page 4-49)
M903 LOADING MOTOR
LOAD, UN LOAD
LOADING MOTOR DRIVE
IC507
S001 MODE SWITCH
MSW 0-2
S005 C.C. DOWN
CC DOWN
R009 DEW SENSOR
DEW SENS
D001 T/E LED
TAPE TOP SENSOR
TOP SENS
Q001
H001 T REEL FG SENSOR
H002 S REEL FG SENSOR
Q002
TAPE END SENSOR
T REEL (+), (-)
S REEL (+), (-)
T REEL AMP
S REEL AMP
END SENS
T/E LED ON
S002
ME/MP
MP/MP-HG
REC PROOF
ME/MP SW
MP/HIB-MP
REC PROOF SW
LS-33 BOARD (See Page 4-49)
D PG, D FG
WAVE SHAPER
(See Page 4-49) SL-38 BOARD
TERMINAL BOARD
J201
CCD-TR650E/TR750E
S VIDEO
Y IN/OUT
C IN/OUT
VIDEO
VIDEO I/O
RFU DC OUT
5V
AUDIO
AUDIO L
AUDIO R
AUDIO I/O L
AUDIO I/O R
CCD-TR530E/TR550E
CCD-TR570E/TR650E/TR750E
MA-179/199 BOARD* (1/2)
IC003/001 (See Page 4-57, 4-65)
STEREO MIC AMP
MIC L
MIC R
J001 EXT MIC
J903 HEADPHONE L
EARPHONE
HEADPHONE R
PHONES
DD-60/66 BOARD* (See Page 4-79) (1/4)
IC201, IC203
IC204, IC205
(CCD-TR650E/TR750E)
CAM Y
VIDEO I/O
Y IN/OUT
EVF OUT Y
EVF OUT C
C IN/OUT
CAM C
Y PROCESS
C PROCESS
IC208 CCD-TR530E/TR550E
IC251 CCD-TR570E/TR650E/TR750E
REC Y RF
PB RF
PB C RF
REC C RF
DATA TO SLAVE, DATA TO MASTER, VTR SCK
IC951 EVR
ADJUST VOLTAGE
EXCEPT CCD-TR650E/TR750E
PJ-61/64 BOARD* (See Page 4-45)
IC1501 JOG CHROMA PROCESS
(See Page 4-53, 4-61)
AU-165/199 BOARD (1/2)*
AUDIO I/O L
MIC L
HEADPHONE L
AUDIO I/O R
MIC R
HEADPHONE R
AFM AUDIO PROCESS
IC401/1301
REC AFM RF
PB RF
CCD-TR570E/TR650E/TR750E
CCD-TR650E/TR750E
IC1101 Y RF AMP
HE-14 BOARD
(See Page 4-42)
IC102 REC/PB AMP
REC Y RF
CH2
CH1
RF SWP
HC HG
FLYING ERASE OSC
FE
REC ATF
PB RF
IC508 ATF SERVO PB SP/LP DET CLOG DET
REF PILOT
ATF ERROR
CLOG, SP/LP DET
FLYING ERASE
MD A-MECHA
M901 DRUM MOTOR
DRUM PG, FG
IC506 (1/2) DRUM MOTOR DRIVE
DRUM VS
IC901 (1/2) DRUM PWM DRIVE
CAPSTAN PWM DRIVE
M902 CAPSTAN MOTOR
CAPSTAN FG
CFG (+), (-)
IC001 CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
(See Page 4-79)
DD-60/66* BOARD (1/4)

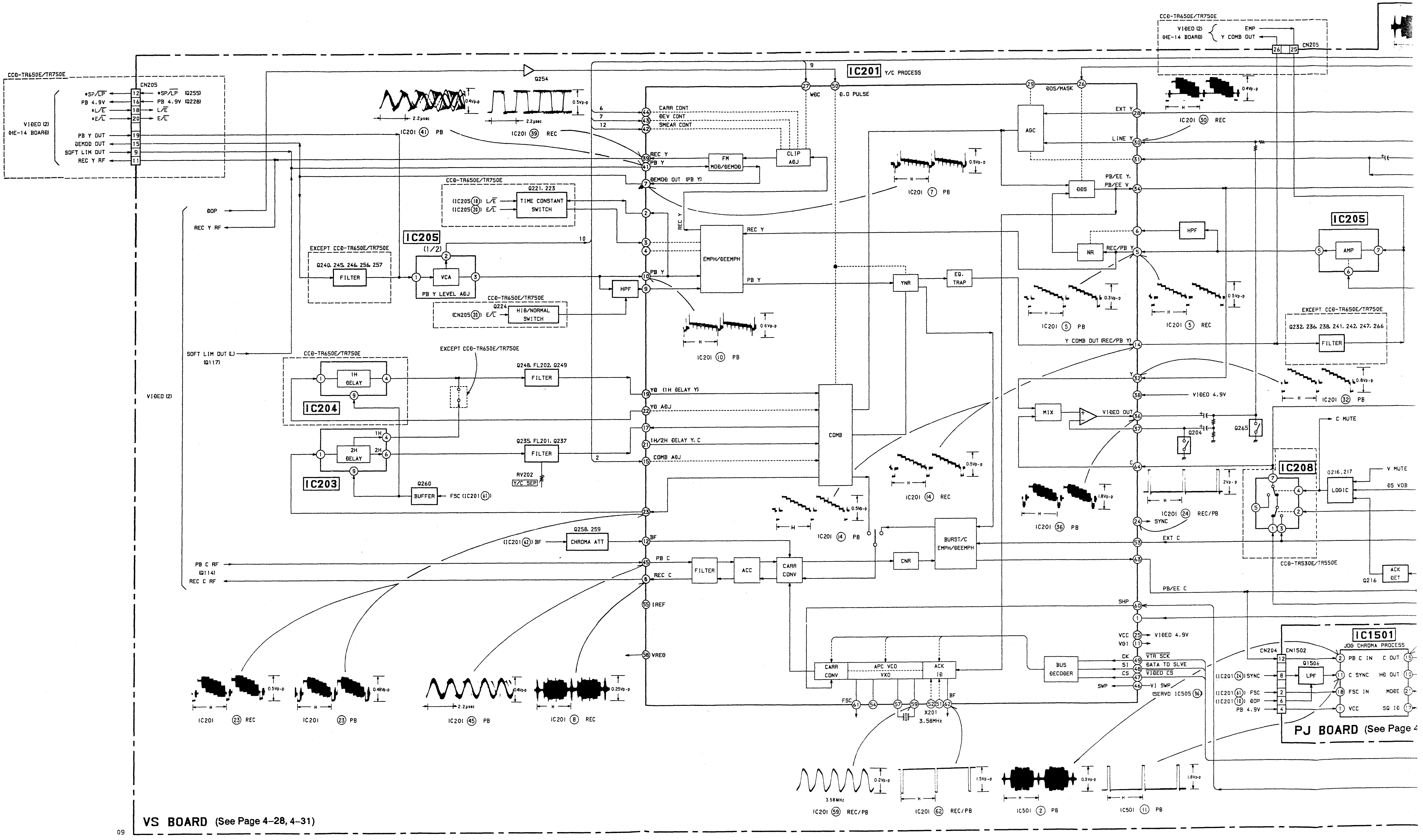

age 4-25, 4-28, 4-31, 4-34, 4-37)
DATA TO SLAVE . DATA TO MASTER . VTR SCK
M903
LOADING MOTOR
4-49)
LOAD. UN LOAD
LOADING MOTOR DRIVE
IC507 (1/4)
LOAD . UN LOAD
IC505
SYSTEM CONTROL / SERVO
IC501
EEPROM
IC503
CCD-TR750E
LCD UNIT
S001
MODE SWITCH
MSW 0-2
S005 C.C. DOWN
CC DOWN
R009
DEW SENSOR
DEW SENS
DEW
CC DOWN
SIRCS SIG
EJECT. START/STOP
K AD IN 0.1
TAPE TOP SENSOR
TOP SENS
Q503 (1/2)
TAPE TOP DETECT
TOP SENS
SYSTEM CONTROL
CHIP SELECT
MODE CONTROL (MASTER)
VTR MODE SW. CAM+STBY MODE SW
H001
T REEL FG SENSOR
H002
S REEL FG SENSOR
Q001
Q002
TAPE END SENSOR
IC507 (1/4)
T REEL (+). (-)
S REEL (+). (-)
T REEL FG AMP
S REEL FG AMP
T REEL FG
S REEL FG
VIDEO. AUDIO. SERVO. CONTROL SIG
BRIGHT A. B
DATE. TIME
K AD 2-4
BUZZER
BACK UP VDD
Q503 (1/2)
TAPE END DETECT
END SENS
END SENS
T/E LED ON
S002
ME/MP SW
MP/HI8-MP
REC PROOF SW
ARD
49)
IC507 (1/4)
D PG . D FG
WAVE SHAPER
DRUM PG . DRUM FG
(See Page 4-49) SL-38 BOARD (1/2)
VTR DD ON
CAM DD ON
CLOG . SP/LP DET
IC502
BACK UP VDD SWITCH
VTR UNREG
(See Page 4-49)
IC507 (1/4)
LANC I/O
SL-38 BOARD (1/2)
LANC SIG
J902
REMOTE
DD-60/66 BOARD(1/4)* (See Page 4-79)
DATA TO SLAVE. DATA TO MASTER
(See Page 4-53, 4-61)
AU-165/169 BOARD* (1/2)
(See Page 4-57, 4-65)
MA-179/199 BOARD* (1/2)
REMOTE CONTROL RECEIVER
IC002
CONTROL SWITCH BLOCK (FK)
ZOOM SW
ZOOM SWITCH
S102, 103
EJECT. START/STOP KEY
S104-106, 109-111, 100
VTR FUNCTION KEY
S101
STANDBY SWITCH
CONTROL SWITCH BLOCK (CK)
S223
POWER SWITCH
CCD-TR750E
MAN FOCUS 1, 2
S220
BRIGHT DIAL
S219
FOCUS MANUAL
S201-222
DDS KEK
S201-208, 217
CAMERA FUNCTION KEY MENUKEY
ZB-2 BOARD
(See Page 4-46)
BU101
BUZZER
L1101
LITHIUM BATTERY
IC901 (1/2)
DRUM VS
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
CAP VS
DRUM ERROR
CAP ERROR
IC506 (1/2)
LPF
LPF
DRUM PWM
CAP PWM
SERVO
RF SWP
CAP FG
REF PILOT
ATF ERROR
(See Page 4-79) DD-60/66* BOARD (1/4)
DD-60/66 BOARD (1/4)*
(See Page 4-79)
IC901 (1/2)
CAM DD ON
VTR DD ON
CAM 15V
CAM -8.5V
CAM 5V
D5V
D3.6V
CAMERA DC/DC CONVERTER
R/P 5V
MT 5V
EVF 5V
AU 5V
VID 5V
SS 3.6V
VTR DC/DC CONVERTER
MAIN BATTERY
MOTOR UNREG
VTR UNREG
EVF Y/C
EXCEPT CCD-TR570E
VF-65 BOARD
(See Page 4-68)
DY
H V
DH1, DH2
T901
HV
H
H OUT
IC906
CRT DRIVE
EVF Y
G1
V901 CRT
CCD-TR570E
VF-67 BOARD
(See Page 4-74)
IC903
EVR
ADJUST VOLTAGE
IC901
EVF Y
EVF C
RGB DECODER
R
G
B
IC902
TIMING GENERATOR
13.5V 12V
LCD PANEL
(See Page 4-74)
LB-35 BOARD
BACK LIGHT
EVF 15V
REG
IC852
EVF UNREG
INVERTER DC/AC CONVERTER
IC851
VF-66 BOARD (See Page 4-73)

3-2. CAMERA BLOCK DIAGRAM

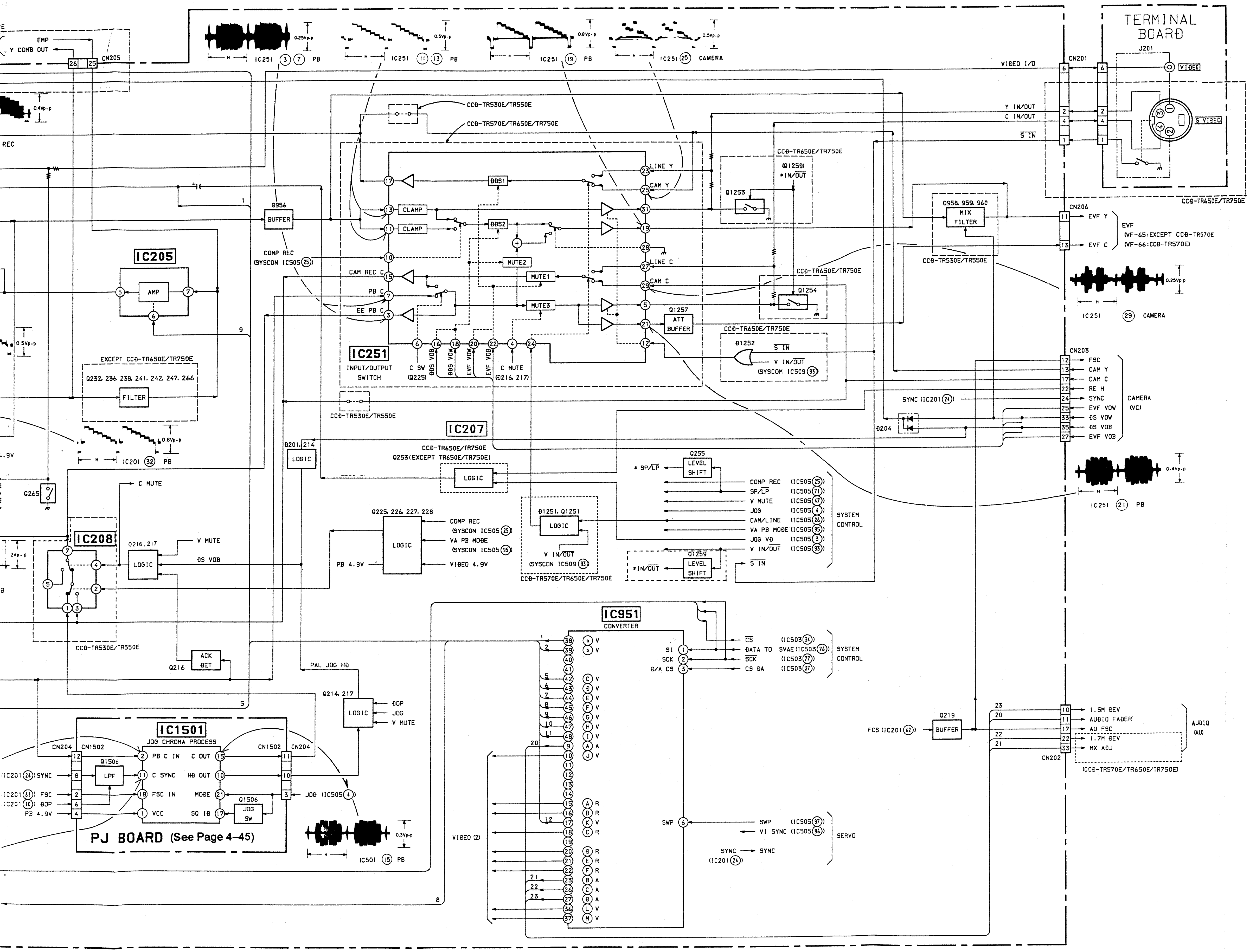

VC BOARD (See Page 4-11, 4-14, 4-17, 4-19)
FP-89 BOARD
(See Page 4-6)
IC691
CCD IMAGER
Q691, 692
BUFFER
W691
CN701
IC703
SIGNAL SEPARATION, AGC
AGC
CLAMP
IC704
A/D CONVERTER
AMP
CAM CLAMP
REF TOP
REF BOTTOM
IC701
V DRIVE
DC GENERATOR
Q701
DC BIAS
IC691 ⑧
IC691 ① ②
IC691 ③ ④
IC703 ㉕
IC703 ⑧
IC704 ①
IC602 (74)
IC702 ⑤
24MHz
28.375MHz
(See Page 4-8)
FP-49 BOARD
(EXCEPT CCD-TR650E)
SE691
PITCH SENSOR
SE692
YAW SENSOR
W691
CN755
(EXCEPT CCD-TR650E)
LPF
IC775 (1/2)
IC774 (1/4)
IC773
IC772
IC776
A/D CONVERTER
IC777
STEADY SHOT CONTROL
X775
12MHz
IC777 ㊵
ZOOM LENS UNIT
M904
IRIS METER
ZOOM SENSER
FOCUS SENSER
M906
ZOOM MOTOR
M905
FOCUS MOTOR
CN751
IC751 (1/2)
IRIS DRIVE
IC752 (1/3)
IRIS DRIVE
IC755
IRIS PWM
HALL A/D
IC752 (1/3)
HALL BIAS CONTROL
IC751 (1/2)
HALL AMP
Q752
IC752 (1/3)
HALL GAIN CONTROL
IC603
D/A CONVERTER (EVR)
IC753 ①
IC753 ②
IC754
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
IC753
ZOOM/FOCUS PRE DRIVE
X601
24MHz


IC701
V DRIVE
IC702
TIMING GENERATOR
IC705
DEFECT COMPENSATION
IC613
ZOOM PROCESS
EXCEPT CCD-TR650E
IC604
CHARACTER MIX
CCD-TR530E/TR550E
IC609
D/A CONVERTER
DIGITAL CAMERA PROCESS
IC614
ON SCREEN DISPLAY
CCD-TR570E/TR650E/TR750E
Q604
BUFFER
Q605
BUFFER
Y LPF
CHROMA LPF
BUFFER
CN601
CAM Y
CAM C
VIDEO (1) (VS)
SYSTEM CONTROL (VS)
IC755
IC603
D/A CONVERTER (EVR)
IC602
CAMERA CONTROL
IC611
OPTICAL DETECTOR
IC610
SYNC GENERATOR
SLAVE COUNTER
MASTER COUNTER
AFC
PLL
LPF
SERIAL LATCH
IC601
EEP ROM
IC753
ZOOM/FOCUS PRE DRIVE
X701 28.375MHz
PRIME OSCRATION
X601 24MHz
*3:CCD-TR650E
*2:OTHER MODELS
*3:CCD-TR750E:E,AUS
*2:OTHER MODELS
IC702 ⑫
IC702 ⑤
IC609 ㊼
IC609 ⑱
IC609 96
IC609 ㊾
IC609 ㉗
IC609 78
IC609 69
IC609 70
IC610 ⑭
IC610 54
14.187MHz
28.375MHz
4.43MHz
CAM VD
FLD
PB V
SYS RESET
DATA TO SLVE
CS OSD
SCK
FSC
REG H
PB SYNC
DS VDW
DS VDB
EVF VDW
NEXT CAM
DATA TO MSTR
CS SG
ZOOM SW
MAN FOCUS 2
MAN FOCUS 1

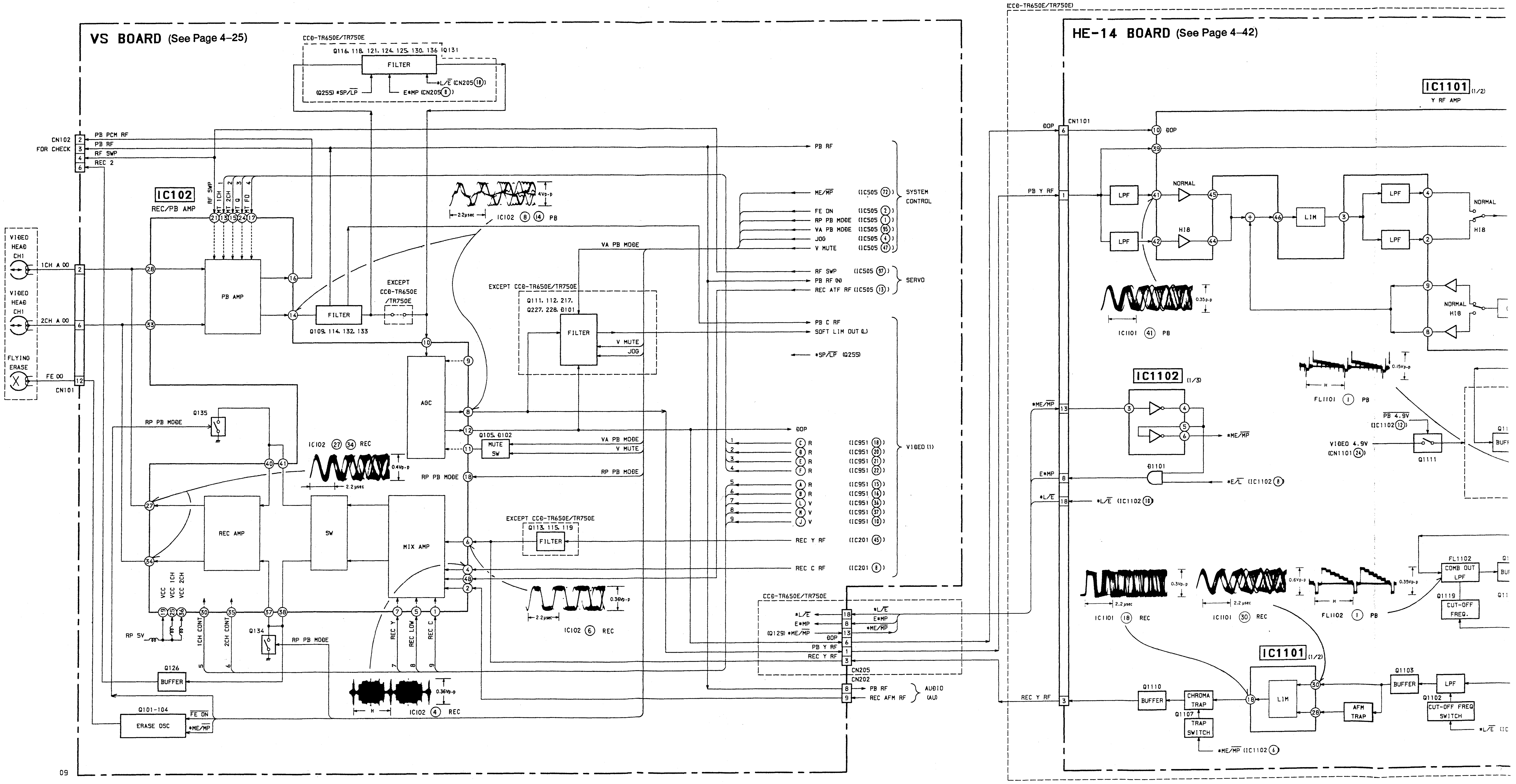
3-3. VIDEO (1) BLOCK DIAGRAM

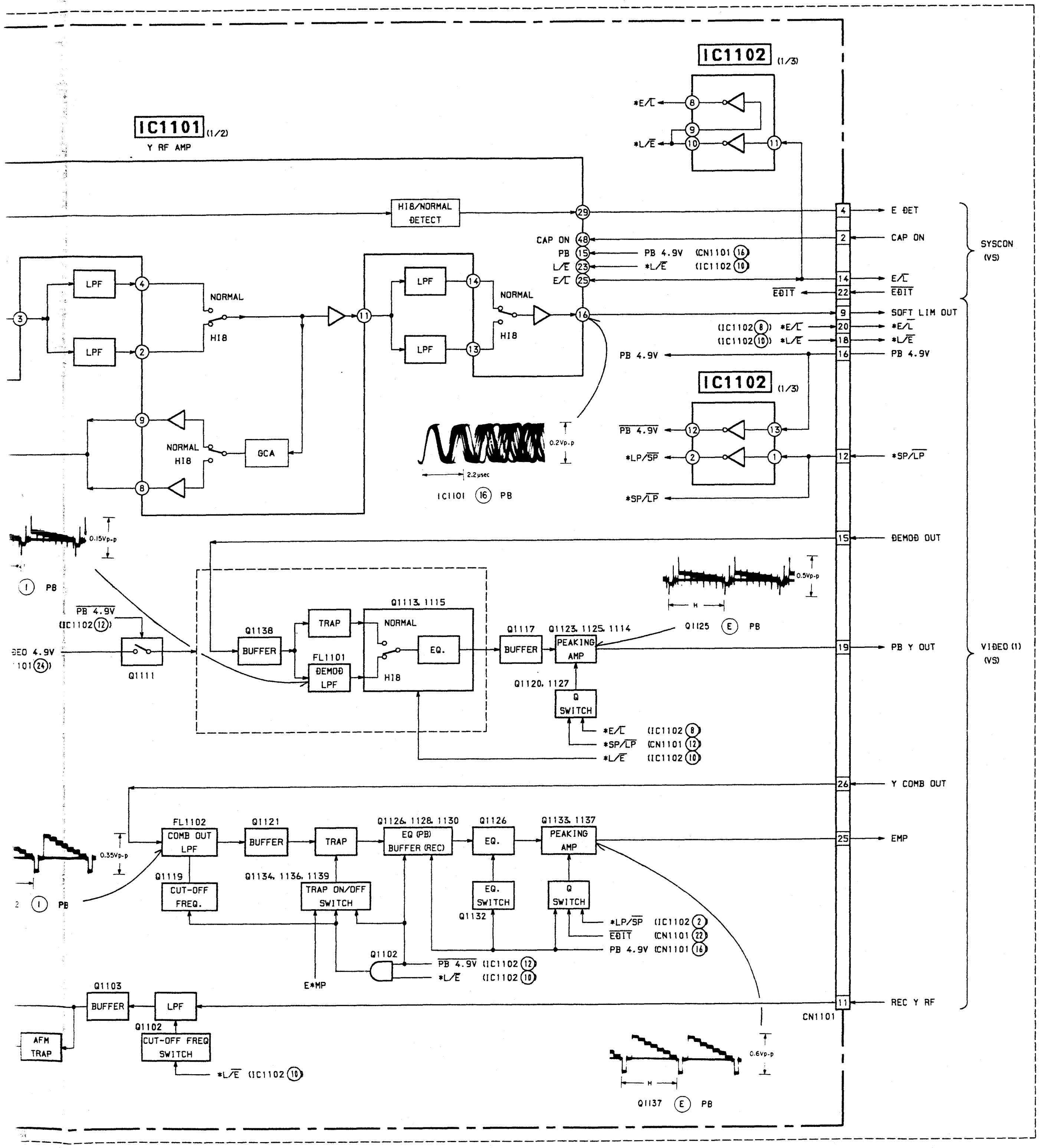


CCD-TR650E/TR750E
VIDEO (2) (HE-14 BOARD)
CN205
*SP/LP
PB 4.9V
*L/E
*E/L
*SP/LP (Q255)
PB 4.9V (Q228)
L/E
E/L
PB Y OUT
DEMOD OUT
SOFT LIM OUT
REC Y RF
DOP
REC Y RF
SOFT LIM OUT (L) (Q117)
VIDEO (2)
PB C RF (Q114)
REC C RF
Q254
IC201 (41) PB
IC201 (39) REC
2.2μsec
IC201 Y/C PROCESS
WBC
D.D PULSE
CARR CONT
DEV CONT
SMEAR CONT
REC Y
PB Y
FM MOD/DEMOD
CLIP ADJ
DEMOD OUT (PB Y)
Q221, 223
TIME CONSTANT SWITCH
(IC205 (18)) L/E
(IC205 (20)) E/L
IC205 (1/2)
EXCEPT CCD-TR650E/TR750E
Q240, 245, 246, 256, 257
FILTER
VCA
PB Y LEVEL ADJ
Q224
HI8/NORMAL SWITCH
(CN205 (20)) E/L
HPF
EMPH/DEEMPH
REC Y
PB Y
IC201 (10) PB
IC201 (7) PB
IC204
1H DELAY
Q248, FL202, Q249
FILTER
YD (1H DELAY Y)
YD ADJ
IC203
2H DELAY
Q235, FL201, Q237
FILTER
RV202 Y/C SEP
Q260
BUFFER
FSC (IC201 (61))
1H/2H DELAY Y, C
COMB ADJ
COMB
YNR
EQ. TRAP
(IC201 (62)) BF
Q258, 259
CHROMA ATT
BF
PB C
REC C
FILTER
ACC
CARR CONV
CNR
BURST/C EMPH/DEEMPH
IREF
VREG
CARR CONV
APC VCO VXO
ACK ID
FSC
X201 3.58MHz
IC201 (23) REC
IC201 (23) PB
IC201 (45) PB
IC201 (8) REC
IC201 (14) PB
IC201 (14) REC
DOS/MASK
AGC
EXT Y
LINE Y
PB/EE Y
PB/EE V
DOS
NR
REC/PB Y
HPF
IC201 (30) REC
IC201 (5) PB
IC201 (5) REC
Y COMB OUT (REC/PB Y)
IC201 (32) PB
VIDEO 4.9V
MIX
VIDEO OUT
Q204
Q265
C MUTE
IC201 (24) REC/PB
SYNC
IC201 (36) PB
EXT C
PB/EE C
SHP
VCC
VGI
VIDEO 4.9V
CK
SI
CS
VTR SCK
DATA TO SLVE
VIDEO CS
BUS DECODER
SWP
VI SWP
(SERVO IC505 (96))
CCD-TR650E/TR750E
VIDEO (2) (HE-14 BOARD)
EMP
Y COMB OUT
IC205
AMP
EXCEPT CCD-TR650E/TR750E
Q232, 236, 238, 241, 242, 247, 266
FILTER
IC208
Q216, 217
LOGIC
V MUTE
DS VDD
CCD-TR530E/TR550E
ACK DET
Q216
CN204
CN1502
IC1501
JOG CHROMA PROCESS
Q1506
LPF
PB C IN
C SYNC
FSC IN
VCC
C OUT
HD OUT
MODE
SQ ID
(IC201 (24)) SYNC
(IC201 (61)) FSC
(IC201 (10)) DOP
PB 4.9V
PJ BOARD (See Page 4
IC201 (59) REC/PB
3.58MHz
IC201 (62) REC/PB
IC501 (2) PB
IC501 (11) PB
VS BOARD (See Page 4-28, 4-31)
09

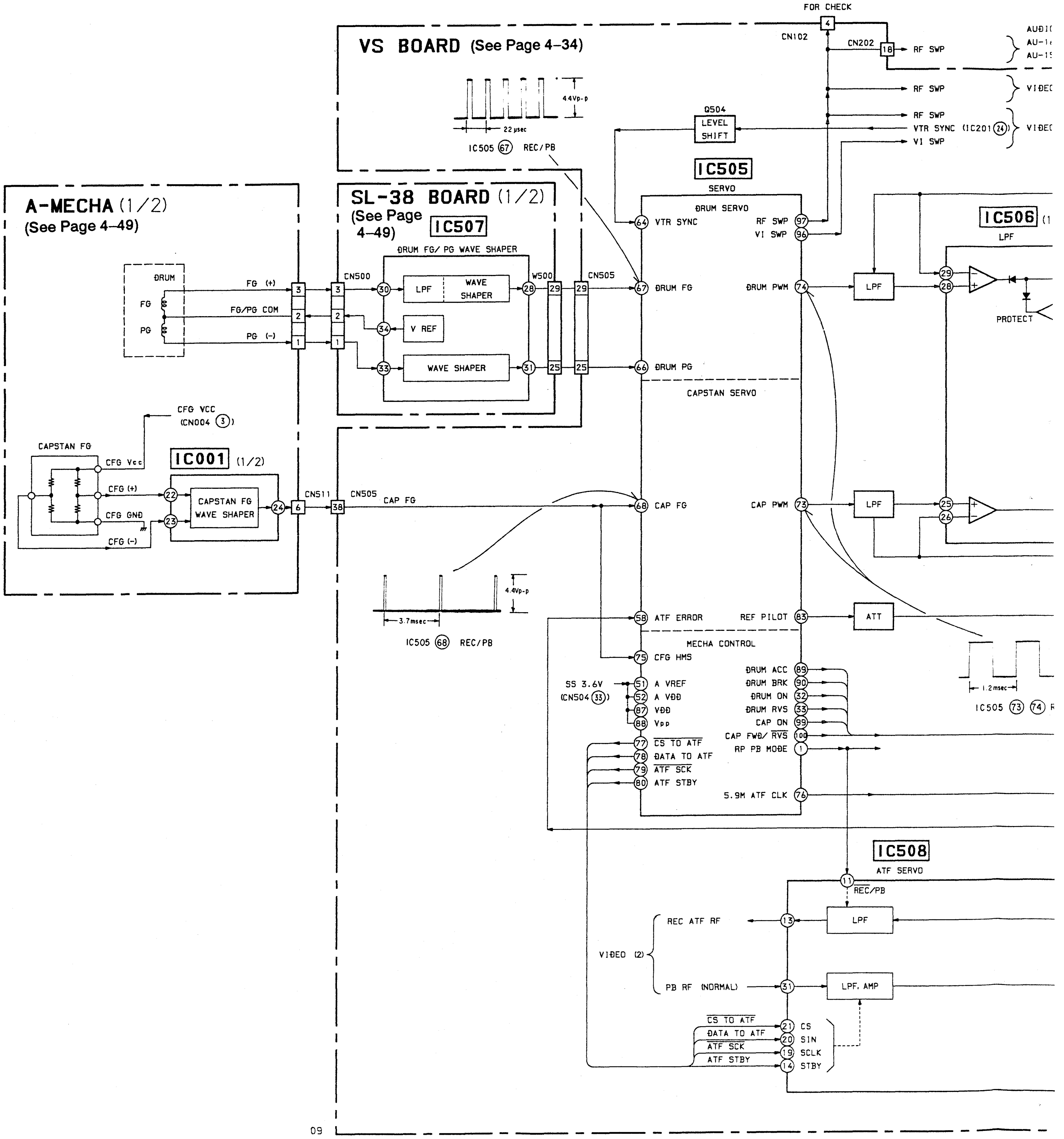

TERMINAL BOARD
J201
VIDEO
S VIDEO
CN201
VIDEO I/O
Y IN/OUT
C IN/OUT
S IN
CCD-TR650E/TR750E
CN206
EVF Y
EVF C
EVF
(VF-65:EXCEPT CCD-TR570E
(VF-66:CCD-TR570E)
Q958, 959, 960
MIX FILTER
CCD-TR530E/TR550E
IC251 (29) CAMERA
0.25Vp-p
CN203
FSC
CAM Y
CAM C
RE H
SYNC
EVF VDW
DS VDW
DS VDB
EVF VDB
CAMERA (VC)
SYNC (IC201 (24))
D204
0.4Vp-p
IC251 (21) PB
IC251 (3) (7) PB
IC251 (11) (13) PB
IC251 (19) PB
IC251 (25) CAMERA
0.25Vp-p
0.5Vp-p
0.8Vp-p
EMP
Y COMB OUT
CN205
0.4Vp-p
REC
CCD-TR530E/TR550E
CCD-TR570E/TR650E/TR750E
LINE Y
CAM Y
DDS1
DDS2
CLAMP
MUTE1
MUTE2
MUTE3
LINE C
CAM C
Q1257
ATT BUFFER
CCD-TR650E/TR750E
Q1259
*IN/OUT
Q1253
Q1254
Q1252
S IN
V IN/OUT
(SYSCON IC509 (93))
Q956
BUFFER
COMP REC
(SYSCON IC505 (25))
CAM REC C
PB C
EE PB C
IC251
INPUT/OUTPUT SWITCH
C SW (Q225)
DS VDB
DS VDW
EVF VDW
EVF VDB
C MUTE (Q216, 217)
IC205
AMP
EXCEPT CCD-TR650E/TR750E
Q232, 236, 238, 241, 242, 247, 266
FILTER
0.5Vp-p
0.8Vp-p
IC201 (32) PB
IC207
Q201, 214
LOGIC
CCD-TR650E/TR750E
Q253 (EXCEPT TR650E/TR750E)
LOGIC
Q255
*SP/LP
LEVEL SHIFT
COMP REC (IC505 (25))
SP/LP (IC505 (71))
V MUTE (IC505 (47))
JOG (IC505 (4))
CAM/LINE (IC505 (26))
VA PB MODE (IC505 (95))
JOG VD (IC505 (3))
V IN/OUT (IC505 (93))
S IN
SYSTEM CONTROL
Q1251, Q1251
LOGIC
V IN/OUT (SYSCON IC509 (93))
CCD-TR570E/TR650E/TR750E
Q1259
*IN/OUT
LEVEL SHIFT
Q225, 226, 227, 228
LOGIC
COMP REC (SYSCON IC505 (25))
VA PB MODE (SYSCON IC505 (95))
VIDEO 4.9V
PB 4.9V
C MUTE
Q265
IC208
2Vp-p
Q216, 217
LOGIC
V MUTE
DS VDB
CCD-TR530E/TR550E
Q216
ACK DET
PAL JOG HD
Q214, 217
LOGIC
DDP
JOG
V MUTE
IC1501
JOG CHROMA PROCESS
CN204
CN1502
Q1506
LPF
PB C IN
C OUT
C SYNC
HD OUT
FSC IN
MODE
VCC
SQ ID
Q1506
JOG SW
IC201 (24) SYNC
IC201 (61) FSC
IC201 (10) DDP
PB 4.9V
JOG (IC505 (4))
PJ BOARD (See Page 4-45)
0.3Vp-p
IC501 (15) PB
IC951
CONVERTER
SI
SCK
D/A CS
CS (IC503 (34))
DATA TO SVAE (IC503 (76))
SCK (IC503 (77))
CS DA (IC503 (37))
SYSTEM CONTROL
SWP
SWP (IC505 (97))
VI SYNC (IC505 (96))
SERVO
SYNC
SYNC (IC201 (24))
VIDEO (2)
Q219
FCS (IC201 (62))
BUFFER
CN202
1.5M DEV
AUDIO FADER
AU FSC
1.7M DEV
MX ADJ
AUDIO (AU)
(CCD-TR570E/TR650E/TR750E)

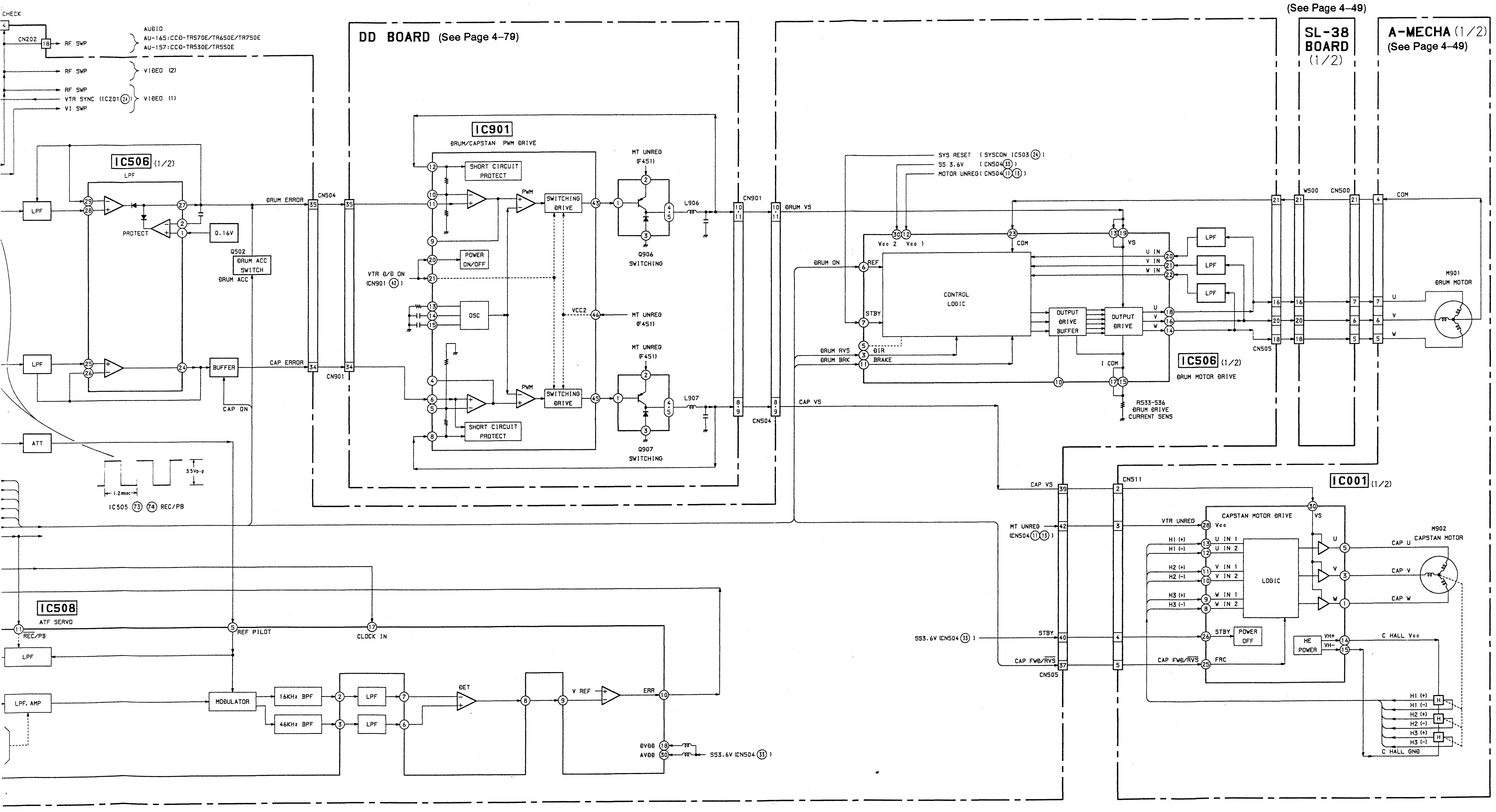
3-4. VIDEO (2) BLOCK DIAGRAM


VS BOARD (See Page 4-25)
CCD-TR650E/TR750E
Q116, 118, 121, 124, 125, 130, 136
Q131
FILTER
*L/E (CN205 ⑱)
(Q255) *SP/LP
E*MP (CN205 ⑧)
CN102
FOR CHECK
PB PCM RF
PB RF
RF SWP
REC 2
IC102
REC/PB AMP
RF SWP
AT 1CH
AT 2CH
AT Q
AT FO
PB AMP
VIDEO HEAD CH1
VIDEO HEAD CH1
FLYING ERASE
1CH A 00
2CH A 00
FE 00
CN101
FILTER
Q109, 114, 132, 133
EXCEPT CCD-TR650E /TR750E
IC102 ⑧ ⑭ PB
4Vp-p
2.2μsec
EXCEPT CCD-TR650E/TR750E
Q111, 112, 217, Q227, 228, 8101
FILTER
V MUTE
JOG
VA PB MODE
AGC
Q105, Q102
MUTE SW
V MUTE
RP PB MODE
Q135
RP PB MODE
IC102 ㉗ ㉞ REC
0.4Vp-p
2.2μsec
REC AMP
SW
MIX AMP
EXCEPT CCD-TR650E/TR750E
Q113, 115, 119
FILTER
IC102 ⑥ REC
0.36Vp-p
VCC 1CH
VCC 2CH
VCC
1CH CONT
2CH CONT
Q134
RP PB MODE
REC Y
REC LOW
REC C
RP 5V
Q126
BUFFER
Q101-104
ERASE OSC
FE ON
*ME/MP
IC102 ④ REC
0.36Vp-p
H
PB RF
ME/MP (IC505 ㉒)
FE ON (IC505 ②)
RP PB MODE (IC505 ①)
VA PB MODE (IC505 ㉟)
JOG (IC505 ④)
V MUTE (IC505 ㊼)
SYSTEM CONTROL
RF SWP (IC505 ㊲)
PB RF 00
REC ATF RF (IC505 ⑬)
SERVO
PB C RF
SOFT LIM OUT (L)
*SP/LP (Q255)
8DP
Ⓒ R (IC951 ⑱)
Ⓑ R (IC951 ⑳)
Ⓔ R (IC951 ㉑)
Ⓕ R (IC951 ㉒)
Ⓐ R (IC951 ⑬)
Ⓑ R (IC951 ⑯)
Ⓛ V (IC951 ㊱)
Ⓗ V (IC951 ㊲)
Ⓙ V (IC951 ⑩)
VIDEO (1)
REC Y RF (IC201 ㊺)
REC C RF (IC201 ⑧)
CCD-TR650E/TR750E
*L/E
E*MP
(Q129) *ME/MP
8DP
PB Y RF
REC Y RF
CN205
CN202
PB RF
REC AFM RF
AUDIO (AU)
09
(CCD-TR650E/TR750E)
HE-14 BOARD (See Page 4-42)
IC1101 (1/2)
Y RF AMP
CN1101
8DP
PB Y RF
LPF
LPF
NORMAL
HI8
LIM
LPF
LPF
NORMAL
HI8
NORMAL
HI8
IC1101 ㊶ PB
0.35p-p
0.15Vp-p
H
FL1101 ① PB
IC1102 (1/3)
*ME/MP
*ME/MP
PB 4.9V (IC1102 ⑫)
VIDEO 4.9V (CN1101 ㉔)
Q1111
Q1101
E*MP
*E/L (IC1102 ⑧)
*L/E
*L/E (IC1102 ⑱)
IC1101 ⑱ REC
0.3Vp-p
2.2μsec
IC1101 ㉚ REC
0.6Vp-p
2.2μsec
FL1102 ① PB
0.35Vp-p
H
FL1102
COMB OUT LPF
Q1119
CUT-OFF FREQ.
IC1101 (1/2)
LIM
Q1110
BUFFER
CHROMA TRAP
Q1107
TRAP SWITCH
*ME/MP (IC1102 ⑥)
REC Y RF
AFM TRAP
Q1103
BUFFER
LPF
Q1102
CUT-OFF FREQ SWITCH
*L/E

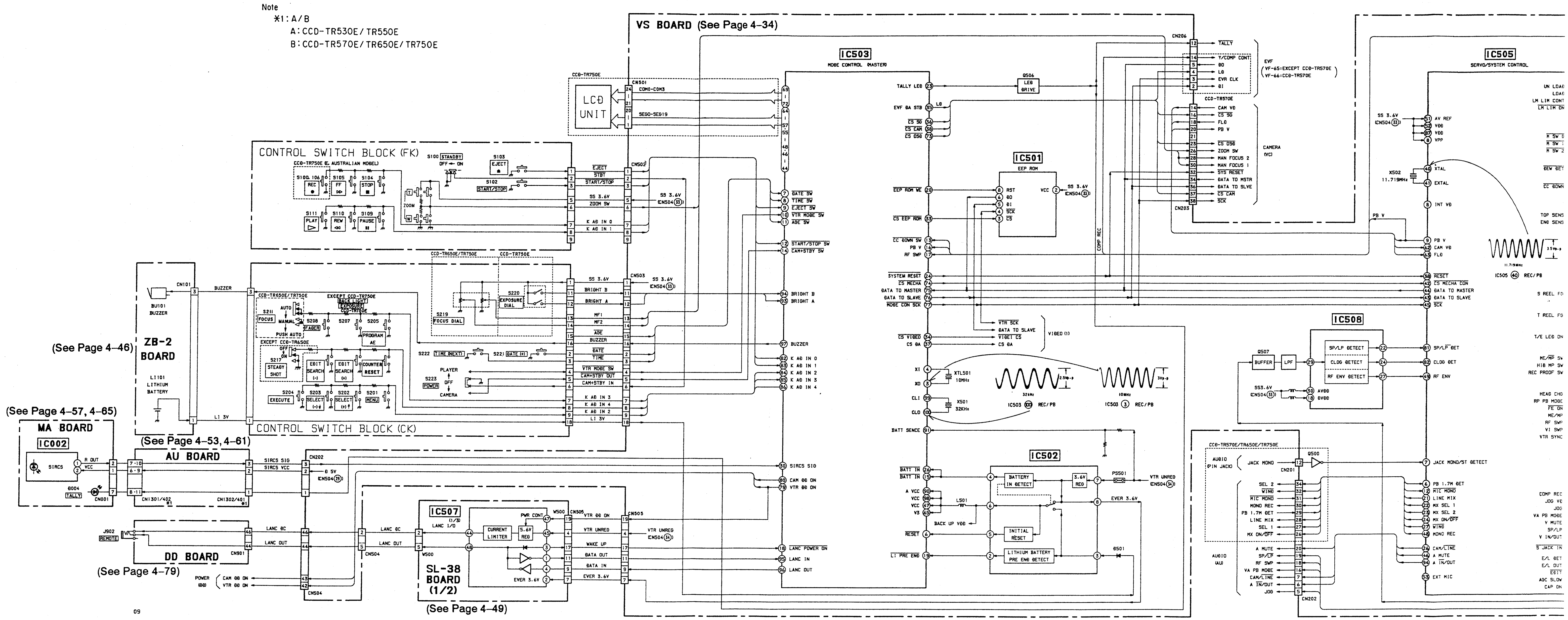

IC1101 (1/2)
Y RF AMP
IC1102 (1/3)
*E/L̄
*L/Ē
HI8/NORMAL DETECT
CAP ON
PB
L/Ē
E/L̄
PB 4.9V (CN1101 ⑯)
*L/Ē (IC1102 ⑩)
LPF
NORMAL
HI8
GCA
NORMAL
HI8
0.2Vp-p
2.2μsec
IC1101 ⑯ PB
E DET
CAP ON
SYSCON (VS)
E/L̄
EDIT
SOFT LIM OUT
(IC1102 ⑧) *E/L̄
(IC1102 ⑩) *L/Ē
*E/L̄
*L/Ē
PB 4.9V
PB 4.9V
PB 4.9V
*LP/SP
*SP/LP
*SP/LP
0.15Vp-p
① PB
PB 4.9V (IC1102 ⑫)
EO 4.9V
101 ㉔
Q1111
Q1138
BUFFER
TRAP
FL1101
DEMOD LPF
Q1113, 1115
NORMAL
HI8
EQ.
Q1117
BUFFER
Q1123, 1125, 1114
PEAKING AMP
Q1120, 1127
Q SWITCH
*E/L̄ (IC1102 ⑧)
*SP/LP (CN1101 ⑫)
*L/Ē (IC1102 ⑩)
0.5Vp-p
H
Q1125 Ⓔ PB
DEMOD OUT
PB Y OUT
VIDEO (1) (VS)
Y COMB OUT
EMP
REC Y RF
CN1101
0.35Vp-p
① PB
FL1102
COMB OUT LPF
Q1119
CUT-OFF FREQ.
Q1121
BUFFER
TRAP
Q1134, 1136, 1139
TRAP ON/OFF SWITCH
Q1126, 1128, 1130
EQ (PB) BUFFER (REC)
Q1126
EQ.
EQ. SWITCH
Q1132
Q1133, 1137
PEAKING AMP
Q SWITCH
*LP/SP (IC1102 ②)
EDIT (CN1101 ㉒)
PB 4.9V (CN1101 ⑯)
Q1102
PB 4.9V (IC1102 ⑫)
*L/Ē (IC1102 ⑩)
E*MP
Q1103
BUFFER
LPF
Q1102
CUT-OFF FREQ SWITCH
*L/Ē (IC1102 ⑩)
AFM TRAP
0.6Vp-p
H
Q1137 Ⓔ PB

3-5. SERVO BLOCK DIAGRAM

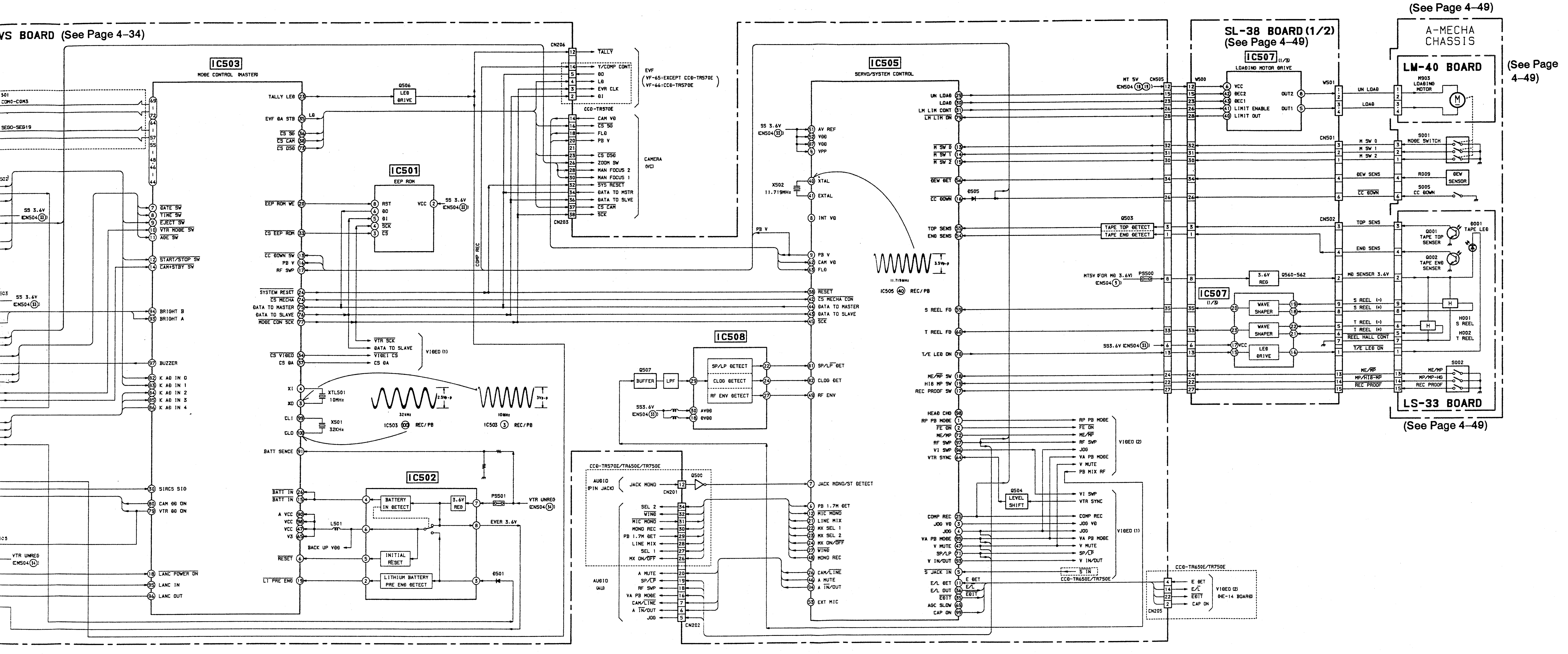

FOR CHECK
CN102
CN202
RF SWP
AUDIO
AU-1
AU-1
VS BOARD (See Page 4-34)
4.4Vp-p
22 µsec
IC505 (67) REC/PB
Q504
LEVEL SHIFT
RF SWP
VIDEO
RF SWP
VTR SYNC (IC201 (24))
VI SWP
VIDEO
IC505
SERVO
DRUM SERVO
A-MECHA (1/2)
(See Page 4-49)
SL-38 BOARD (1/2)
(See Page 4-49)
IC507
DRUM FG/ PG WAVE SHAPER
DRUM
FG
PG
FG (+)
FG/PG COM
PG (-)
CN500
LPF
WAVE SHAPER
V REF
WAVE SHAPER
W500
CN505
VTR SYNC
RF SWP
VI SWP
DRUM FG
DRUM PWM
DRUM PG
CAPSTAN SERVO
IC506
LPF
LPF
PROTECT
CFG VCC (CN004 (3))
CAPSTAN FG
CFG Vcc
CFG (+)
CFG GND
CFG (-)
IC001 (1/2)
CAPSTAN FG WAVE SHAPER
CN511
CN505
CAP FG
CAP FG
CAP PWM
LPF
4.4Vp-p
3.7msec
IC505 (68) REC/PB
ATF ERROR
REF PILOT
ATT
MECHA CONTROL
CFG HMS
1.2msec
IC505 (73) (74)
SS 3.6V (CN504 (33))
A VREF
A VDD
VDD
Vpp
DRUM ACC
DRUM BRK
DRUM ON
DRUM RVS
CAP ON
CAP FWD/ RVS
RP PB MODE
CS TO ATF
DATA TO ATF
ATF SCK
ATF STBY
5.9M ATF CLK
IC508
ATF SERVO
REC/PB
REC ATF RF
LPF
VIDEO (2)
PB RF (NORMAL)
LPF, AMP
CS TO ATF
DATA TO ATF
ATF SCK
ATF STBY
CS
SIN
SCLK
STBY
09


CHECK
CN202
RF SWP
AUDIO
AU-165:CCD-TR570E/TR650E/TR750E
AU-157:CCD-TR530E/TR550E
VIDEO (2)
VTR SYNC (IC201 ㉔)
VI SWP
VIDEO (1)
IC506 (1/2)
LPF
PROTECT
0.16V
Q502
DRUM ACC SWITCH
DRUM ACC
DRUM ERROR
CAP ERROR
BUFFER
CAP ON
CN504
CN901
ATT
3.5Vp-p
1.2msec
IC505 ㉓ ㉔ REC/PB
IC508
ATF SERVO
REC/PB
REF PILOT
CLOCK IN
LPF, AMP
MODULATOR
16KHz BPF
46KHz BPF
DET
V REF
ERR
DVDD
AVDD
SS3.6V (CN504 ㉝)
DD BOARD (See Page 4-79)
IC901
DRUM/CAPSTAN PWM DRIVE
SHORT CIRCUIT PROTECT
PWM
SWITCHING DRIVE
POWER ON/OFF
VTR D/D ON (CN901 ㊷)
OSC
VCC2
MT UNREG (F451)
L906
L907
Q906 SWITCHING
Q907 SWITCHING
DRUM VS
CAP VS
SYS RESET (SYSCON IC503 ㉔)
SS 3.6V (CN504 ㉝)
MOTOR UNREG (CN504 ⑪ ⑬)
Vcc 2
Vcc 1
COM
VS
DRUM ON
REF
STBY
CONTROL LOGIC
DRUM RVS
DRUM BRK
DIR
BRAKE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U IN
V IN
W IN
I COM
IC506 (1/2)
DRUM MOTOR DRIVE
R533-536 DRUM DRIVE CURRENT SENS
CN505
(See Page 4-49)
SL-38 BOARD (1/2)
W500
CN500
A-MECHA (1/2) (See Page 4-49)
M901 DRUM MOTOR
CN511
IC001 (1/2)
MT UNREG (CN504 ⑪ ⑬)
SS3.6V (CN504 ㉝)
CAP FWD/RVS
VTR UNREG
CAPSTAN MOTOR DRIVE
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
LOGIC
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
POWER OFF
FRC
HE POWER
VH+
VH-
C HALL Vcc
C HALL GND
CAP U
CAP V
CAP W
M902 CAPSTAN MOTOR

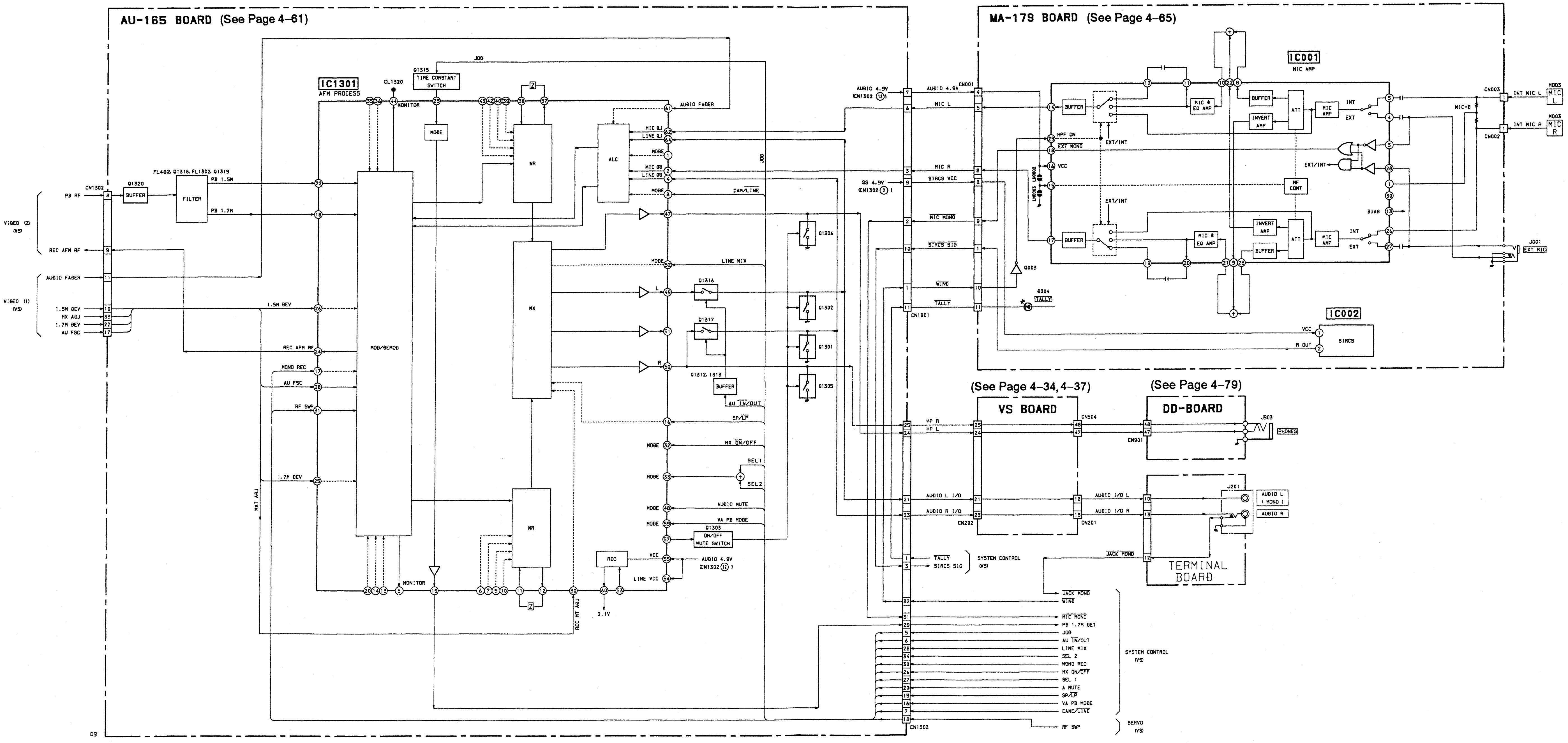
3-6. SYSTEM CONTROL BLOCK DIAGRAM


VS BOARD (See Page 4-34)
IC503
MODE CONTROL (MASTER)
IC501
EEP ROM
IC502
IC505
SERVO/SYSTEM CONTROL
IC508
SP/LP DETECT
CLOG DETECT
RF ENV DETECT
LCD UNIT
CCD-TR750E
CN501
COM0-COM3
SEG0-SEG19
CONTROL SWITCH BLOCK (FK)
CONTROL SWITCH BLOCK (CK)
S100 STANDBY
S103 EJECT
S102 START/STOP
S100, 106 REC
S105 FF
S104 STOP
S111 PLAY
S110 REW
S109 PAUSE
ZOOM
CN502
EJECT
STBY
START/STOP
SS 3.6V
ZOOM SW
K AD IN 0
K AD IN 1
CN503
BRIGHT B
BRIGHT A
MF1
MF2
ADE
BUZZER
DATE
TIME
VTR MODE SW
CAM+STBY OUT
CAM+STBY IN
K AD IN 3
K AD IN 4
K AD IN 2
LI 3V
S220 EXPOSURE DIAL
S219 FOCUS DIAL
S211 FOCUS
S208 FADER
S207 BACK LIGHT
S205 PROGRAM AE
S217 STEADY SHOT
S222 TIME (NEXT)
S221 DATE (+)
S223 POWER
PLAYER
OFF
CAMERA
S204 EXECUTE
S203 SELECT (-↓)
S202 SELECT (+↑)
S201 MENU
EDIT SEARCH (-)
EDIT SEARCH (+)
COUNTER RESET
ZB-2 BOARD
BU101 BUZZER
L1101 LITHIUM BATTERY
CN101
(See Page 4-46)
MA BOARD
IC002
SIRCS
R OUT
VCC
D004 TALLY
CN001
(See Page 4-57, 4-65)
AU BOARD
(See Page 4-53, 4-61)
CN1301/402
CN1302/401
SIRCS SIG
SIRCS VCC
CN202
D 5V
DD BOARD
CN901
J902 REMOTE
LANC DC
LANC OUT
(See Page 4-79)
POWER (DD)
CAM DD ON
VTR DD ON
CN504
SL-38 BOARD (1/2)
(See Page 4-49)
IC507 (1/2)
LANC I/O
CURRENT LIMITER
5.6V REG
PWR CONT
W500
CN505
VTR DD ON
VTR UNREG
WAKE UP
DATA OUT
DATA IN
EVER 3.6V
CN206
TALLY
Y/COMP CONT
DD
LD
EVR CLK
DI
EVF
VF-65: EXCEPT CCD-TR570E
VF-66: CCD-TR570E
CAM VD
CS SG
FLD
PB V
CS DSO
ZOOM SW
MAN FOCUS 2
MAN FOCUS 1
SYS RESET
DATA TO MSTR
DATA TO SLVE
CS CAM
SCK
CN203
CAMERA (VC)
Q506 LED DRIVE
TALLY LED
EVF BA STB
EEP ROM WE
CS EEP ROM
CC DOWN SW
RF SWP
SYSTEM RESET
CS MECHA
DATA TO MASTER
DATA TO SLAVE
MODE CON SCK
CS VIDEO
CS DA
VTR SCK
VIDEO CS
VIDEO (I)
XTL501 10MHz
XS01 32KHz
IC503 (100) REC/PB
IC503 (3) REC/PB
BATT SENCE
BATT IN
A VCC
VCC
VS
BACK UP VDD
RESET
LI PRE END
BATTERY IN DETECT
3.6V REG
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
PS501
VTR UNREG
EVER 3.6V
D501
L501
GATE SW
TIME SW
EJECT SW
VTR MODE SW
ADE SW
START/STOP SW
CAM+STBY SW
BRIGHT B
BRIGHT A
BUZZER
K AD IN 0
K AD IN 1
K AD IN 2
K AD IN 3
K AD IN 4
SIRCS SIG
CAM DD ON
VTR DD ON
LANC POWER ON
LANC IN
LANC OUT
COMP REC
SS 3.6V (CN504 (33))
AV REF
VDD
VPP
X502 11.719MHz
XTAL
EXTAL
INT VD
CAM VD
FLD
IC505 (40) REC/PB
RESET
CS MECHA CON
SP/LP DET
CLOG DET
RF ENV
Q507 BUFFER
LPF
AVDD
DVDD
CCD-TR570E/TR650E/TR750E
AUDIO (PIN JACK)
JACK MONO
Q500
CN201
JACK MONO/ST DETECT
SEL 2
WIND
MIC MONO
MONO REC
PB 1.7M DET
LINE MIX
SEL 1
MX ON/OFF
MX SEL 1
MX SEL 2
AUDIO (AU)
A MUTE
SP/LP
RF SWP
VA PB MODE
CAM/LINE
A IN/OUT
JOG
CN202
EXT MIC
UN LOAD
LOAD
LM LIM CONT
LM LIM ON
TOP SENS
END SENS
S REEL FG
T REEL FG
T/E LED ON
HEAD CHG
RP PB MODE
FE ON
ME/MP
RF SWP
VI SWP
VTR SYNC
COMP REC
JOG VC
VA PB MODE
V MUTE
SP/LP
V IN/OUT
S JACK IN
E/L DET
E/L OUT
EDIT
AGC SLOW
CAP ON
09

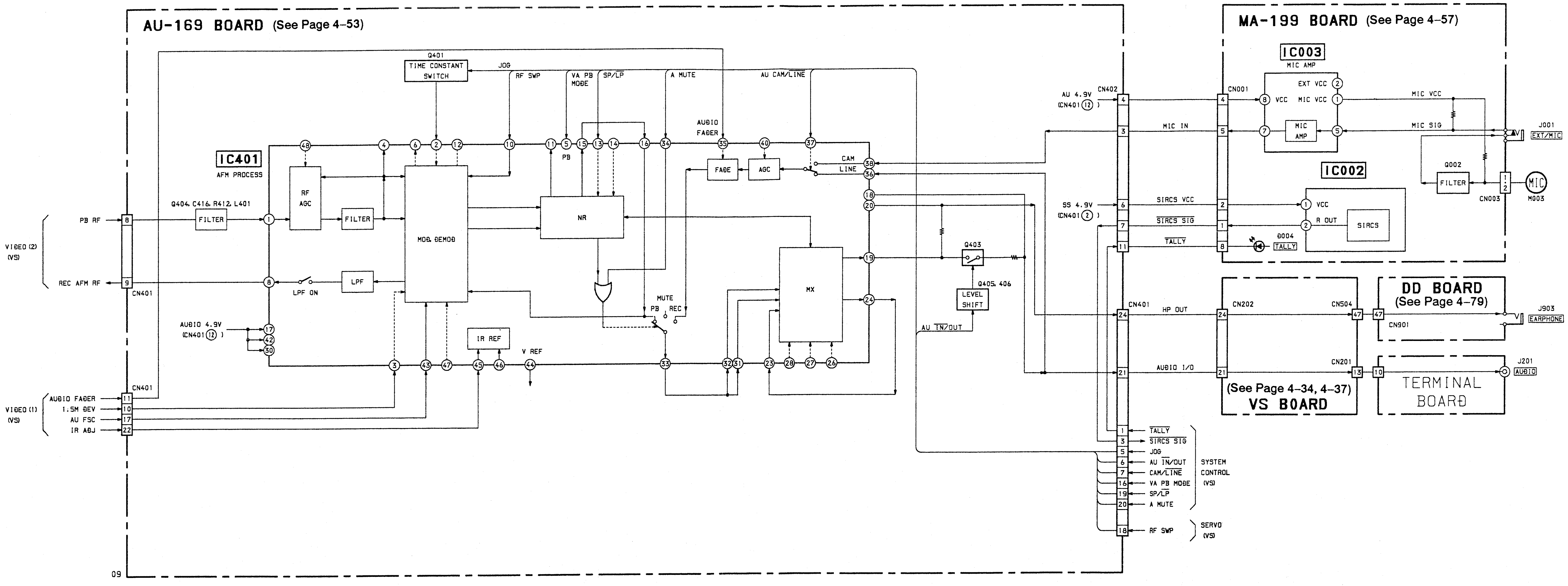
Note
*1: A/B
A: CCD-TR530E/TR550E
B: CCD-TR570E/TR650E/TR750E


VS BOARD (See Page 4-34)
IC503
MODE CONTROL (MASTER)
IC501
EEP ROM
IC502
IC505
SERVO/SYSTEM CONTROL
IC508
SP/LP DETECT
CLOG DETECT
RF ENV DETECT
SL-38 BOARD (1/2)
(See Page 4-49)
IC507 (1/2)
LOADING MOTOR DRIVE
A-MECHA CHASSIS
(See Page 4-49)
LM-40 BOARD
(See Page 4-49)
M903 LOADING MOTOR
LS-33 BOARD
(See Page 4-49)
S001 MODE SWITCH
S005 CC DOWN
DEW SENSOR
Q001 TAPE TOP SENSER
Q002 TAPE END SENSER
D001 TAPE LED
H001 S REEL
H002 T REEL
S002
Q503
TAPE TOP DETECT
TAPE END DETECT
WAVE SHAPER
LED DRIVE
3.6V REG
Q560-562
Q506 LED DRIVE
CN206
CN203
CN201
CN202
CN205
CN505
CN501
CN502
W500
W501
EVF (VF-65:EXCEPT CCD-TR570E / VF-66:CCD-TR570E)
CAMERA (VC)
VIDEO (1)
VIDEO (2)
VIDEO (2) (DE-14 BOARD)
CCD-TR570E
CCD-TR570E/TR650E/TR750E
CCD-TR650E/TR750E
AUDIO (PIN JACK)
AUDIO (AU)
XTL501 10MHz
X501 32KHz
X502 11.719MHz
32kHz
10MHz
11.719MHz
IC503 (100) REC/PB
IC503 (3) REC/PB
IC505 (40) REC/PB
2.5Vp-p
3Vp-p
3.5Vp-p
Q507 BUFFER
LPF
Q500
Q504 LEVEL SHIFT
Q505
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
3.6V REG
PS501
PS500
L501
D501
TALLY LED
EVF DA STB
CS SW
CS CAM
CS DSD
EEP ROM WE
CS EEP ROM
CC DOWN SW
PB V
RF SWP
SYSTEM RESET
CS MECHA
DATA TO MASTER
DATA TO SLAVE
MODE CON SCK
CS VIDEO
CS DA
BATT SENCE
BATT IN
A VCC
VCC
VS
BACK UP VDD
RESET
LI PRE END
EVER 3.6V
VTR UNREG
GATE SW
TIME SW
EJECT SW
VTR MODE SW
AGC SW
START/STOP SW
CAM+STBY SW
BRIGHT B
BRIGHT A
BUZZER
K AD IN 0
K AD IN 1
K AD IN 2
K AD IN 3
K AD IN 4
SIRCS SIG
CAM DD ON
VTR DD ON
LANC POWER ON
LANC IN
LANC OUT
SS 3.6V
TALLY
Y/COMP CONT
DD
LD
EVR CLK
DI
CAM VD
CS SG
FLD
ZOOM SW
MAN FOCUS 2
MAN FOCUS 1
SYS RESET
DATA TO MSTR
DATA TO SLVE
CS CAM
SCK
VTR SCK
VIDEO CS
VIDEO (1)
COMP REC
AV REF
VDD
VPP
XTAL
EXTAL
INT VD
CAM VD
FLD
RESET
CS MECHA CON
UN LOAD
LOAD
LM LIM CONT
LM LIM ON
M SW 0
M SW 1
M SW 2
DEW DET
CC DOWN
TOP SENS
END SENS
S REEL FG
T REEL FG
T/E LED ON
ME/MP SW
HI8 MP SW
REC PROOF SW
HEAD CHG
RP PB MODE
FE ON
ME/MP
RF SWP
V1 SWP
VTR SYNC
JOG VD
JOG
VA PB MODE
V MUTE
SP/LP
V IN/OUT
S JACK IN
E/L DET
E/L OUT
EDIT
AGC SLOW
CAP ON
SP/LP DET
CLOG DET
RF ENV
AVDD
DVDD
JACK MONO
JACK MONO/ST DETECT
SEL 2
WIND
MIC MONO
MONO REC
PB 1.7M DET
LINE MIX
SEL 1
MX ON/OFF
MX SEL 1
MX SEL 2
A MUTE
CAM/LINE
A IN/OUT
EXT MIC
PB MIX RF
E DET
MT 5V
LIMIT ENABLE
LIMIT OUT
OUT1
OUT2
MD SENSER 3.6V
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
REEL HALL CONT
T/E LED ON
ME/MP
MP/HI8-MP
REC PROOF
MTSV (FOR MD 3.6V)
SS3.6V CN504

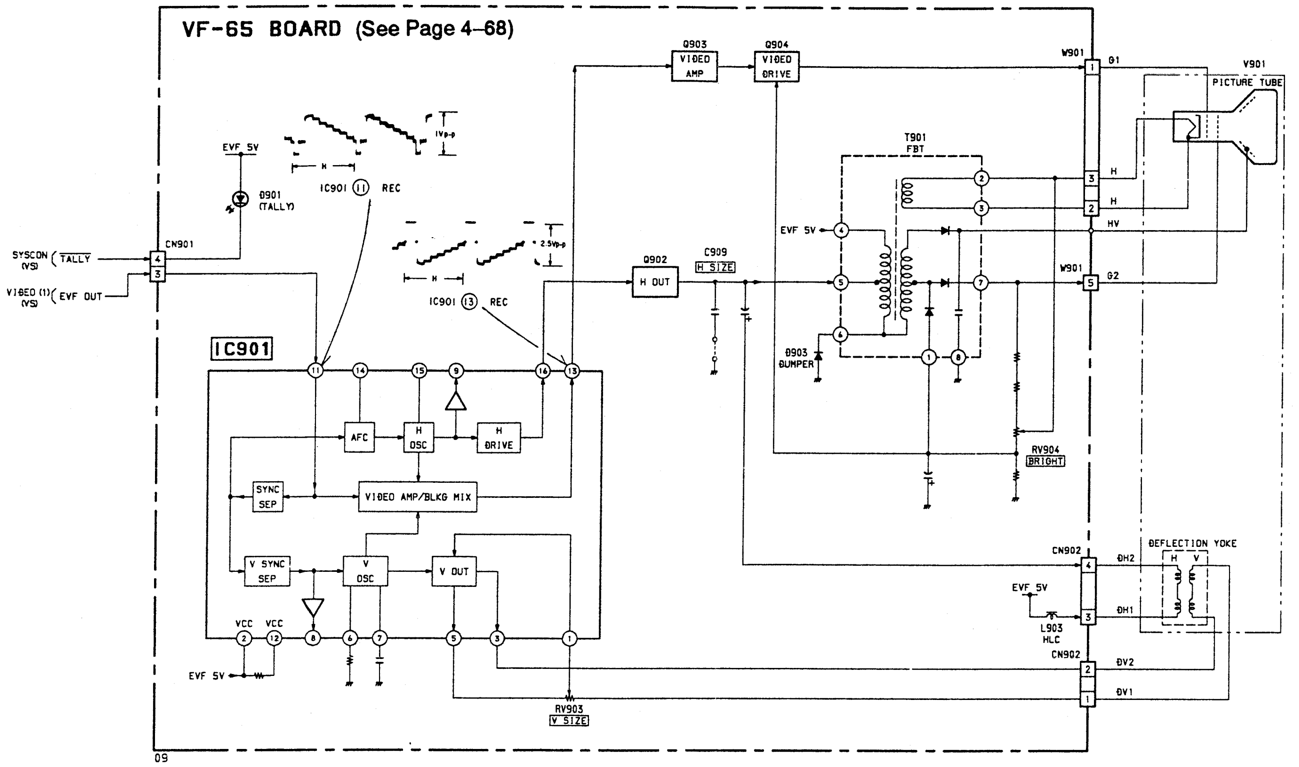
3-7. AUDIO (STEREO) BLOCK DIAGRAM (TR570E/TR650E/TR750E)


AU-165 BOARD (See Page 4-61)
IC1301
AFM PROCESS
MOD/DEMOD
NR
MX
ALC
MODE
BUFFER
FILTER
Q1320
FL402, Q1318, FL1302, Q1319
CN1302
PB RF
REC AFM RF
AUDIO FADER
1.5M DEV
MX ADJ
1.7M DEV
AU FSC
VIDEO (2) (VS)
VIDEO (1) (VS)
Q1315 TIME CONSTANT SWITCH
CL1320
MONITOR
JOG
MIC (L)
LINE (L)
MIC (R)
LINE (R)
CAM/LINE
LINE MIX
Q1316
Q1317
Q1312, 1313
AU IN/OUT
SP/LP
MX ON/OFF
SEL 1
SEL 2
AUDIO MUTE
VA PB MODE
Q1303 ON/OFF MUTE SWITCH
REG
VCC
LINE VCC
AUDIO 4.9V (CN1302 (12))
2.1V
REC MT ADJ
MAT ADJ
MONO REC
RF SWP
Q1306
Q1302
Q1301
Q1305
MA-179 BOARD (See Page 4-65)
IC001
MIC AMP
BUFFER
MIC & EQ AMP
INVERT AMP
ATT
INT
EXT
HPF ON
EXT MONO
EXT/INT
NF CONT
BIAS
IC002
SIRCS
R OUT
CN001
MIC L
MIC R
SIRCS VCC
MIC MONO
SIRCS SIG
WIND
TALLY
Q003
D004
CN003
CN002
INT MIC L
INT MIC R
M003
MIC L
MIC R
MIC+B
J001
EXT MIC
(See Page 4-34, 4-37)
VS BOARD
(See Page 4-79)
DD-BOARD
HP R
HP L
CN504
CN901
J503
PHONES
AUDIO L I/O
AUDIO R I/O
CN202
CN201
J201
AUDIO L (MONO)
AUDIO R
JACK MONO
TERMINAL BOARD
SYSTEM CONTROL (VS)
PB 1.7M DET
A MUTE
CAME/LINE
SERVO (VS)
RF SWP
CN1301
09

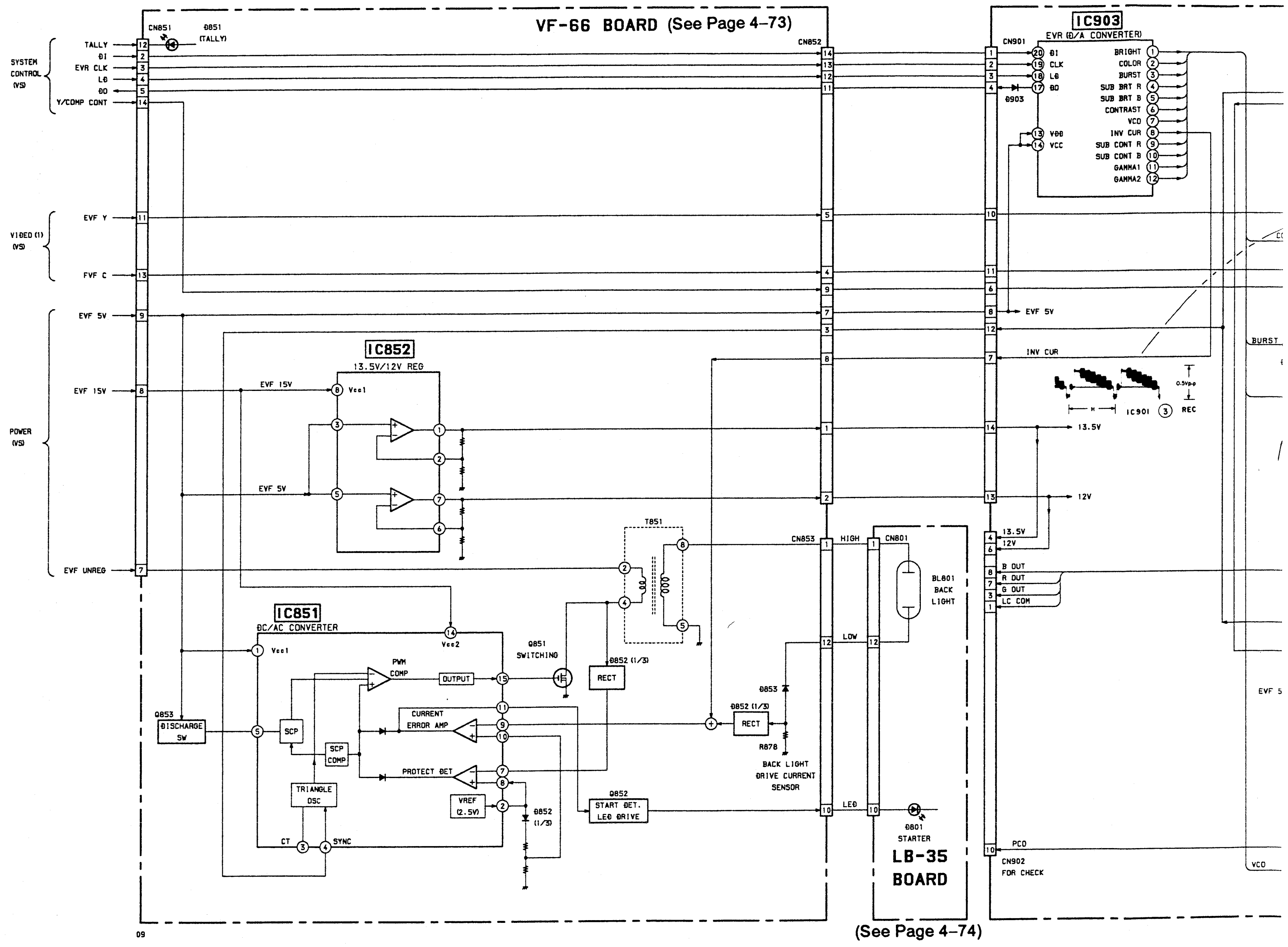
3-8. AUDIO (MONO) BLOCK DIAGRAM (TR530E/TR550E)

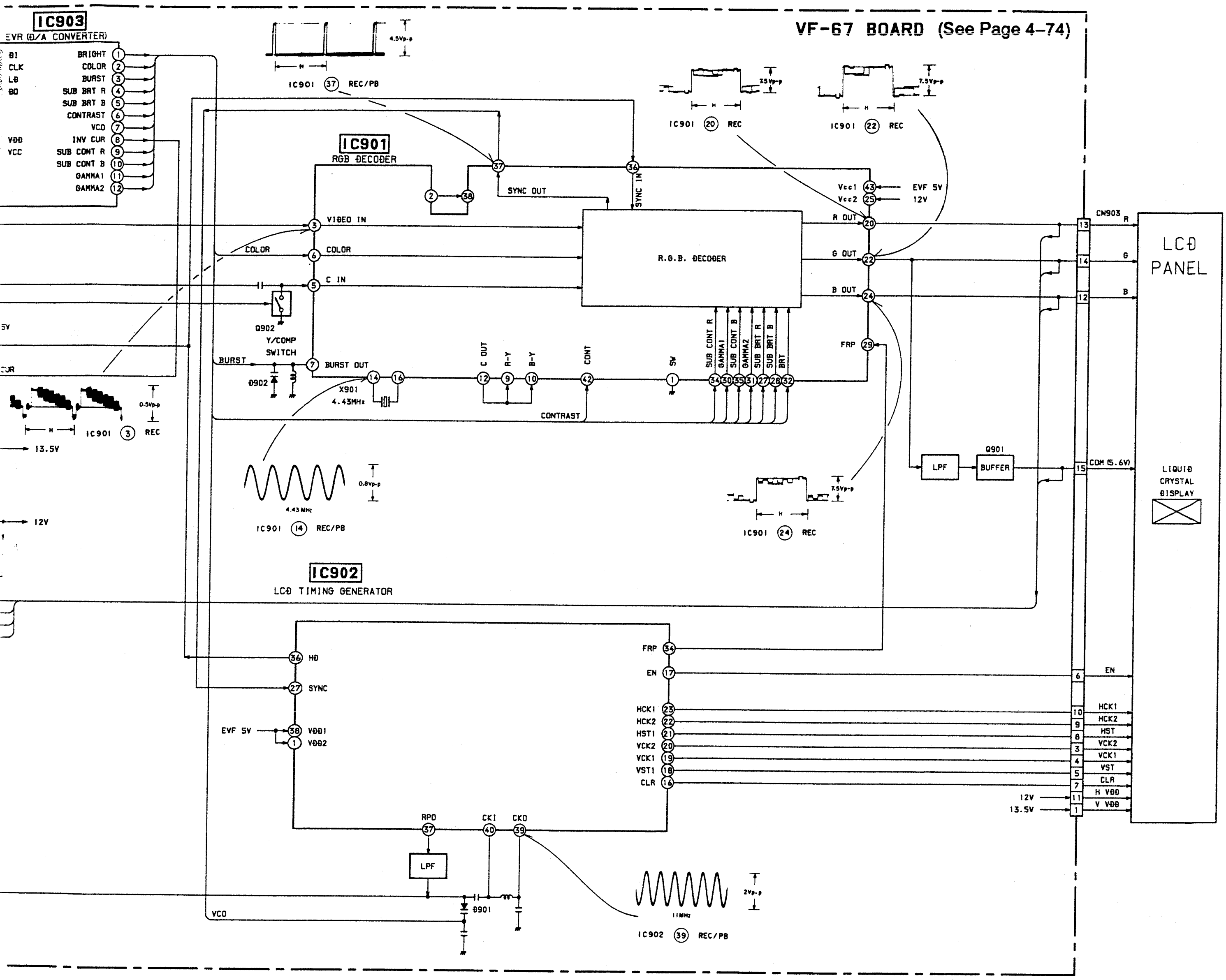

AU-169 BOARD (See Page 4-53)
IC401
AFM PROCESS
Q401
TIME CONSTANT SWITCH
JOG
RF SWP
VA PB MODE
SP/LP
A MUTE
AU CAM/LINE
AUDIO FADER
PB
Q404, C416, R412, L401
FILTER
RF AGC
FILTER
MOD, DEMOD
NR
LPF
LPF ON
FADE
AGC
CAM
LINE
MUTE
PB
REC
MX
IR REF
V REF
AUDIO 4.9V (CN401 ⑫)
Q403
Q405, 406
LEVEL SHIFT
AU IN/OUT
VIDEO (2) (VS)
PB RF
REC AFM RF
CN401
VIDEO (1) (VS)
AUDIO FADER
1.5M DEV
AU FSC
IR ADJ
CN402
AU 4.9V (CN401 ⑫)
MIC IN
SS 4.9V (CN401 ②)
SIRCS VCC
SIRCS SIG
TALLY
HP OUT
AUDIO I/O
TALLY
SIRCS SIG
JOG
AU IN/OUT
CAM/LINE
VA PB MODE
SP/LP
A MUTE
SYSTEM CONTROL (VS)
RF SWP
SERVO (VS)
MA-199 BOARD (See Page 4-57)
IC003
MIC AMP
CN001
VCC
EXT VCC
MIC VCC
MIC AMP
MIC VCC
MIC SIG
J001
EXT/MIC
IC002
VCC
R OUT
SIRCS
D004
TALLY
Q002
FILTER
CN003
MIC
M003
CN202
CN504
DD BOARD (See Page 4-79)
CN901
J903
EARPHONE
CN201
J201
AUDIO
(See Page 4-34, 4-37)
VS BOARD
TERMINAL BOARD
09

3-9. W/B EVF BLOCK DIAGRAM (TR530E/TR550E/TR650E/TR750E)

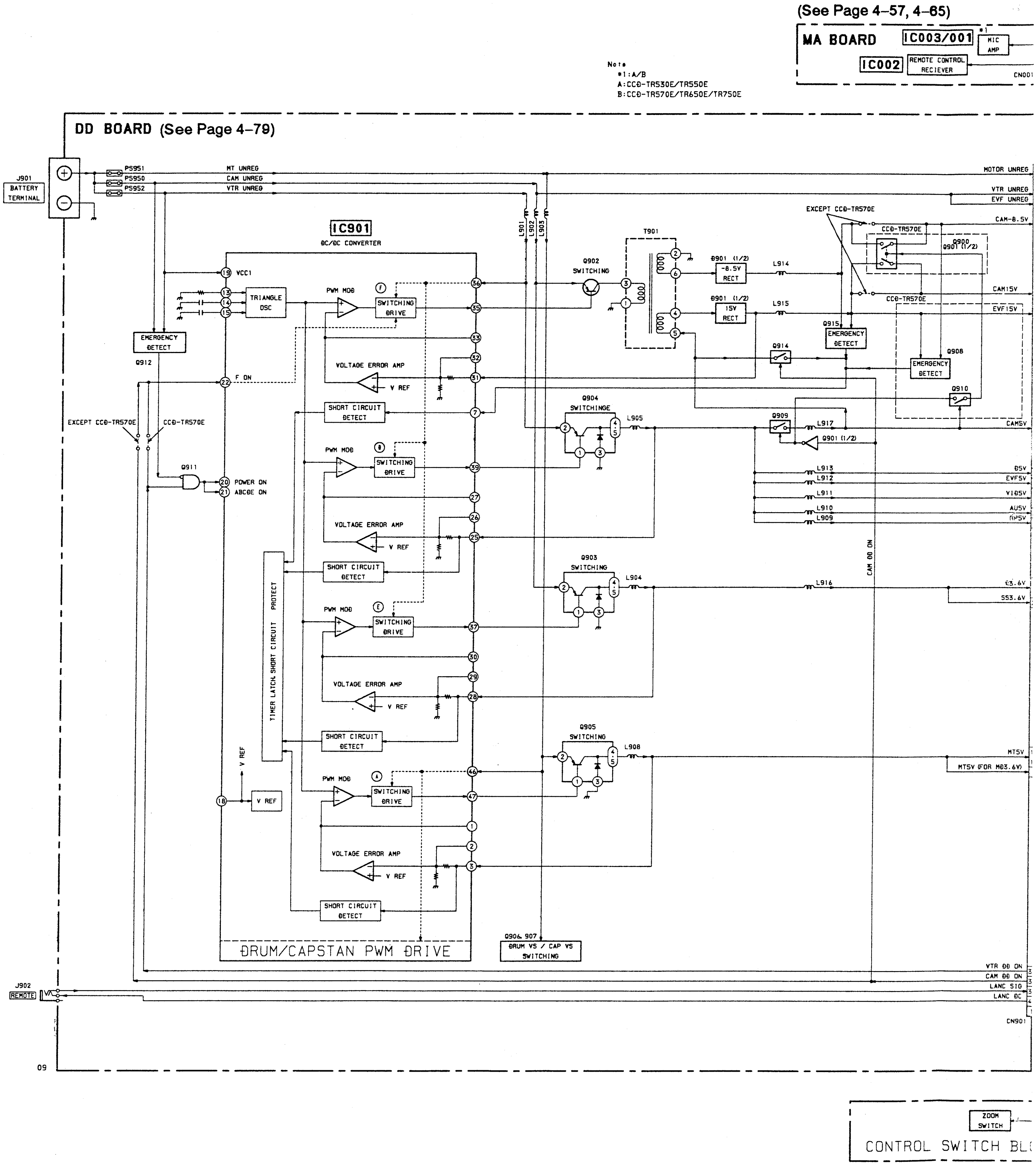

VF-65 BOARD (See Page 4-68)
SYSCON (VS) TALLY
VIDEO (1) (VS) EVF OUT
CN901
EVF 5V
D901 (TALLY)
IC901 ⑪ REC
1Vp-p
H
IC901 ⑬ REC
2.5Vp-p
IC901
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC
VCC
EVF 5V
RV903
V SIZE
Q903
VIDEO AMP
Q904
VIDEO DRIVE
Q902
H OUT
C909
H SIZE
T901
FBT
EVF 5V
D903
DUMPER
RV904
BRIGHT
W901
G1
H
H
HV
W901
G2
V901
PICTURE TUBE
CN902
DH2
EVF 5V
L903
HLC
DH1
CN902
DV2
DV1
DEFLECTION YOKE
H
V
09

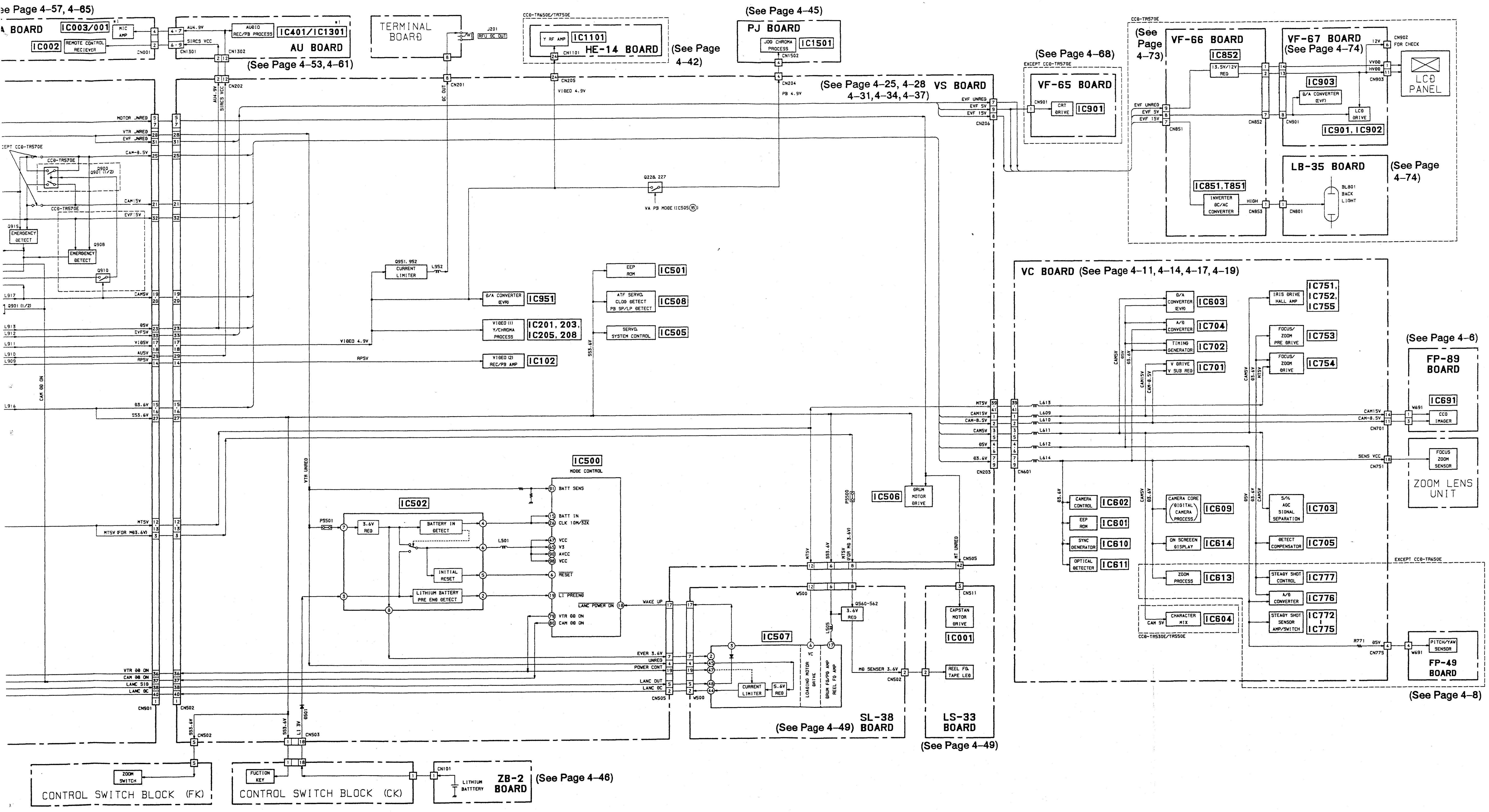
3-10. COLOR EVF BLOCK DIAGRAM (TR570E)


VF-66 BOARD (See Page 4-73)
SYSTEM CONTROL (VS)
TALLY
DI
EVR CLK
LD
DO
Y/COMP CONT
CN851
D851 (TALLY)
VIDEO (1) (VS)
EVF Y
FVF C
POWER (VS)
EVF 5V
EVF 15V
EVF UNREG
IC852
13.5V/12V REG
EVF 15V
Vcc1
EVF 5V
IC851
DC/AC CONVERTER
Vcc1
Vcc2
PWM COMP
OUTPUT
Q851 SWITCHING
CURRENT ERROR AMP
PROTECT DET
Q853
DISCHARGE SW
SCP
SCP COMP
TRIANGLE OSC
VREF (2.5V)
CT
SYNC
D852 (1/3)
T851
RECT
D852 (1/3)
D853
D852 (1/3)
RECT
R878
BACK LIGHT DRIVE CURRENT SENSOR
Q852
START DET. LED DRIVE
CN852
CN853
HIGH
LOW
LED
CN801
BL801 BACK LIGHT
D801 STARTER
LB-35 BOARD
(See Page 4-74)
IC903
EVR (D/A CONVERTER)
CN901
DI
CLK
LD
DO
D903
VDD
VCC
BRIGHT
COLOR
BURST
SUB BRT R
SUB BRT B
CONTRAST
VCO
INV CUR
SUB CONT R
SUB CONT B
GAMMA1
GAMMA2
EVF 5V
INV CUR
0.5Vp-p
H
IC901 ③ REC
13.5V
12V
13.5V
12V
B OUT
R OUT
G OUT
LC COM
PCO
CN902 FOR CHECK
BURST
VCO
EVF 5
09


IC903
EVR (D/A CONVERTER)
BRIGHT
COLOR
BURST
SUB BRT R
SUB BRT B
CONTRAST
VCO
INV CUR
SUB CONT R
SUB CONT B
GAMMA1
GAMMA2
VDD
VCC
VF-67 BOARD (See Page 4-74)
IC901 37 REC/PB
4.5Vp-p
IC901 20 REC
IC901 22 REC
7.5Vp-p
IC901
RGB DECODER
SYNC OUT
SYNC IN
VIDEO IN
COLOR
C IN
Q902
Y/COMP SWITCH
BURST
BURST OUT
X901
4.43MHz
C OUT
R-Y
B-Y
CONT
SW
SUB CONT R
GAMMA1
SUB CONT B
GAMMA2
SUB BRT R
SUB BRT B
BRT
CONTRAST
R.G.B. DECODER
Vcc1
Vcc2
EVF 5V
12V
R OUT
G OUT
B OUT
FRP
CN903
R
G
B
LCD PANEL
LPF
Q901
BUFFER
COM (5.6V)
LIQUID CRYSTAL DISPLAY
0.5Vp-p
IC901 3 REC
13.5V
12V
0.8Vp-p
4.43MHz
IC901 14 REC/PB
IC901 24 REC
IC902
LCD TIMING GENERATOR
HD
SYNC
EVF 5V
VDD1
VDD2
FRP
EN
HCK1
HCK2
HST1
VCK2
VCK1
VST1
CLR
HST
VST
H VDD
V VDD
RPD
CKI
CKO
LPF
D901
VCO
2Vp-p
11MHz
IC902 39 REC/PB

3-11. POWER BLOCK DIAGRAM

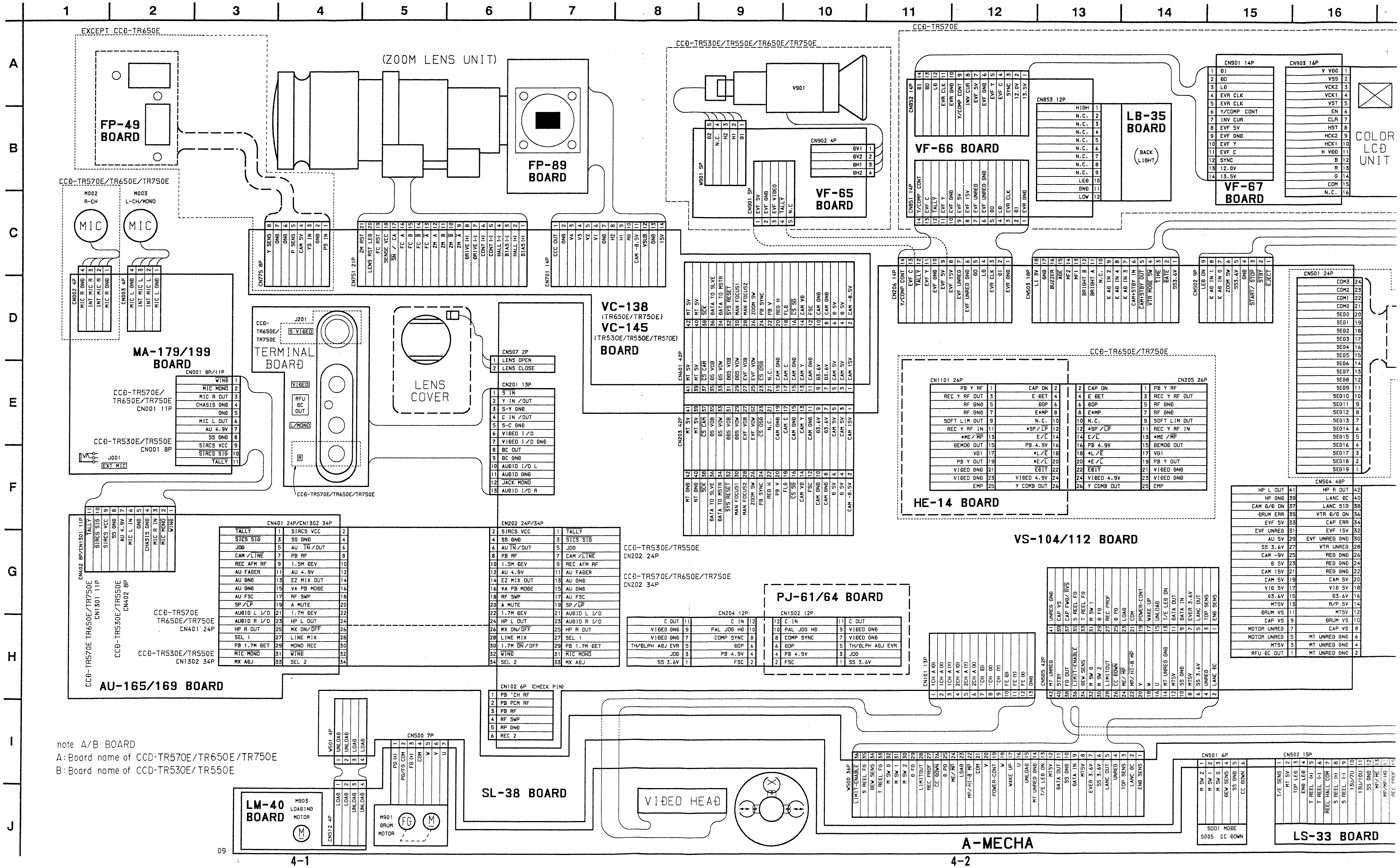

(See Page 4–57, 4–65)
MA BOARD
IC003/001
MIC AMP
IC002
REMOTE CONTROL RECIEVER
CN001
Note
*1:A/B
A:CCD-TR530E/TR550E
B:CCD-TR570E/TR650E/TR750E
DD BOARD (See Page 4–79)
J901 BATTERY TERMINAL
PS951
PS950
PS952
MT UNREG
CAM UNREG
VTR UNREG
MOTOR UNREG
VTR UNREG
EVF UNREG
L901
L902
L903
IC901
DC/DC CONVERTER
VCC1
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
V REF
SHORT CIRCUIT DETECT
EMERGENCY DETECT
Q912
F ON
EXCEPT CCD-TR570E
CCD-TR570E
Q911
POWER ON
ABCDE ON
TIMER LATCH, SHORT CIRCUIT PROTECT
V REF
DRUM/CAPSTAN PWM DRIVE
Q906, 907
DRUM VS / CAP VS SWITCHING
T901
Q902 SWITCHING
D901 (1/2) -8.5V RECT
D901 (1/2) 15V RECT
L914
L915
EXCEPT CCD-TR570E
CCD-TR570E
Q900
Q901 (1/2)
CAM-8.5V
CAM15V
EVF15V
Q915 EMERGENCY DETECT
Q914
Q908 EMERGENCY DETECT
Q910
Q904 SWITCHINGE
L905
Q909
L917
Q901 (1/2)
CAM5V
L913
L912
L911
L910
L909
D5V
EVF5V
VIDSV
AU5V
RP5V
CAM DD ON
Q903 SWITCHING
L904
L916
S3.6V
SS3.6V
Q905 SWITCHING
L908
MT5V
MT5V (FOR MD3.6V)
VTR DD ON
CAM DD ON
LANC SIG
LANC DC
CN901
J902 REMOTE
09
ZOOM SWITCH
CONTROL SWITCH BL


(See Page 4-57, 4-65)
BOARD
IC003/001
IC002
REMOTE CONTROL RECIEVER
MIC AMP
AUDIO REC/PB PROCESS
IC401/IC1301
AU BOARD
(See Page 4-53, 4-61)
TERMINAL BOARD
J201
RFU DC OUT
CCD-TR650E/TR750E
Y RF AMP
IC1101
HE-14 BOARD
(See Page 4-42)
(See Page 4-45)
PJ BOARD
JOG CHROMA PROCESS
IC1501
(See Page 4-25, 4-28 4-31, 4-34, 4-37)
VS BOARD
(See Page 4-68)
EXCEPT CCD-TR570E
VF-65 BOARD
CRT DRIVE
IC901
CCD-TR570E
(See Page 4-73)
VF-66 BOARD
IC852
13.5V/12V REG
IC851, T851
INVERTER DC/AC CONVERTER
VF-67 BOARD
(See Page 4-74)
IC903
D/A CONVERTER (EVF)
LCD DRIVE
IC901, IC902
LCD PANEL
FOR CHECK
LB-35 BOARD
(See Page 4-74)
BACK LIGHT
Q228, 227
VA PB MODE (IC505 95)
EMERGENCY DETECT
Q951, 952 CURRENT LIMITER
D/A CONVERTER (EVR)
IC951
VIDEO (1) Y/CHROMA PROCESS
IC201, 203, IC205, 208
VIDEO (2) REC/PB AMP
IC102
EEP ROM
IC501
ATF SERVO, CLOG DETECT PB SP/LP DETECT
IC508
SERVO, SYSTEM CONTROL
IC505
IC500
MODE CONTROL
IC502
3.6V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
IC506
DRUM MOTOR DRIVE
IC507
CURRENT LIMITER
5.6V REG
3.6V REG
LOADING MOTOR DRIVE
DRUM FG/PG AMP
REEL FG AMP
SL-38 BOARD
(See Page 4-49)
CAPSTAN MOTOR DRIVE
IC001
REEL FG, TAPE LED
LS-33 BOARD
(See Page 4-49)
VC BOARD (See Page 4-11, 4-14, 4-17, 4-19)
D/A CONVERTER (EVR)
IC603
A/D CONVERTER
IC704
TIMING GENERATOR
IC702
V DRIVE V SUB REG
IC701
IRIS DRIVE HALL AMP
IC751, IC752, IC755
FOCUS/ZOOM PRE DRIVE
IC753
FOCUS/ZOOM DRIVE
IC754
CAMERA CONTROL
IC602
EEP ROM
IC601
SYNC GENERATOR
IC610
OPTICAL DETECTER
IC611
CAMERA CORE DIGITAL CAMERA PROCESS
IC609
ON SCREEEN DISPLAY
IC614
ZOOM PROCESS
IC613
CHARACTER MIX
IC604
CCD-TR530E/TR550E
S/H AGC SIGNAL SEPARATION
IC703
DETECT COMPENSATOR
IC705
EXCEPT CCD-TR650E
STEADY SHOT CONTROL
IC777
A/D CONVERTER
IC776
STEADY SHOT SENSOR AMP/SWITCH
IC772 IC775
(See Page 4-6)
FP-89 BOARD
IC691
CCD IMAGER
FOCUS ZOOM SENSOR
ZOOM LENS UNIT
PITCH/YAW SENSOR
FP-49 BOARD
(See Page 4-8)
ZOOM SWITCH
CONTROL SWITCH BLOCK (FK)
FUCTION KEY
CONTROL SWITCH BLOCK (CK)
LITHIUM BATTERY
ZB-2 BOARD
(See Page 4-46)

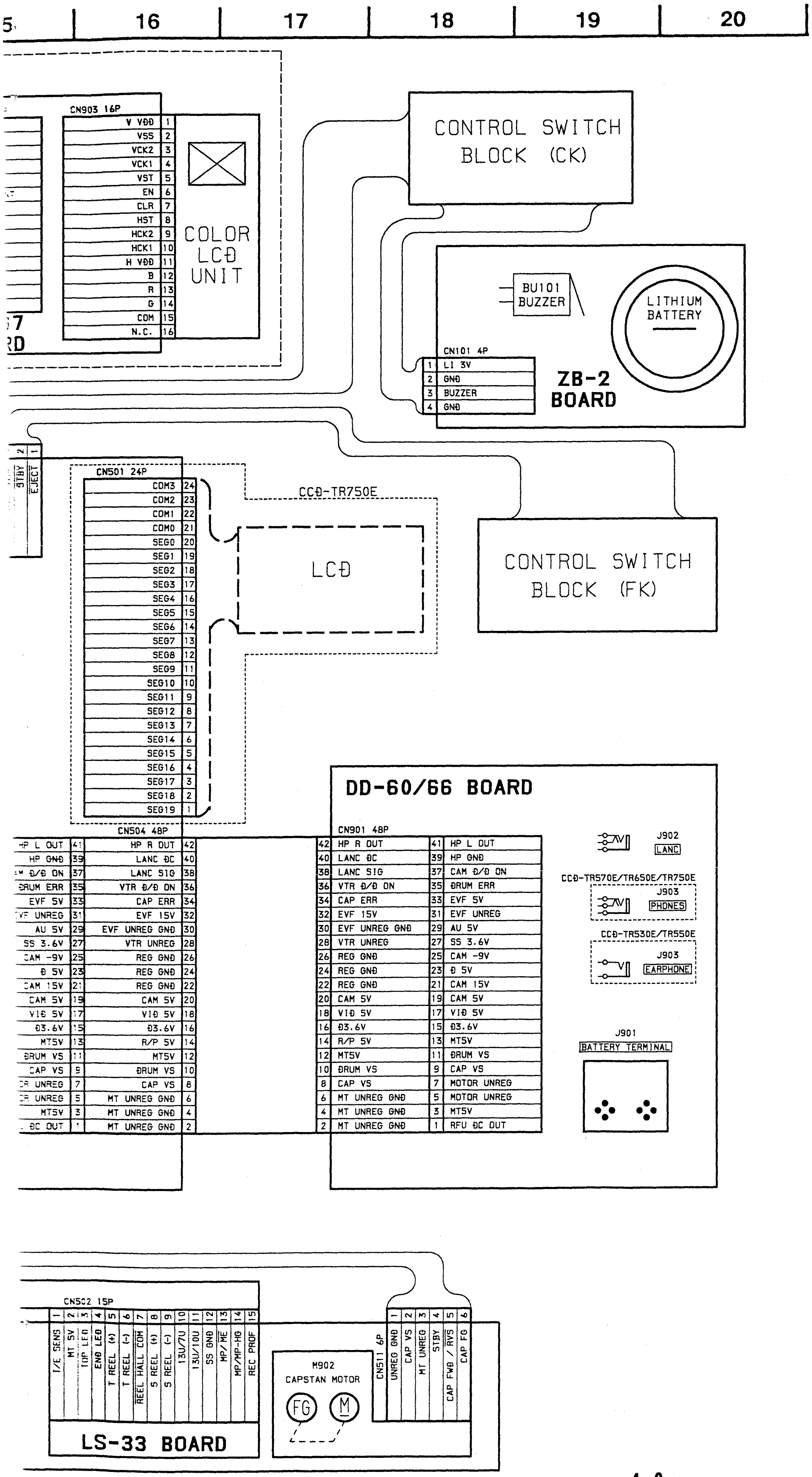
SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


EXCEPT CCD-TR650E
FP-49 BOARD
(ZOOM LENS UNIT)
FP-89 BOARD
CCD-TR530E/TR550E/TR650E/TR750E
V901
VF-65 BOARD
CCD-TR570E
VF-66 BOARD
LB-35 BOARD
(BACK LIGHT)
VF-67 BOARD
COLOR LCD UNIT
CCD-TR570E/TR650E/TR750E
M002 R-CH
M003 L-CH/MONO
MIC
MA-179/199 BOARD
TERMINAL BOARD
LENS COVER
VC-138 (TR650E/TR750E)
VC-145 (TR530E/TR550E/TR570E)
BOARD
CCD-TR650E/TR750E
HE-14 BOARD
VS-104/112 BOARD
AU-165/169 BOARD
PJ-61/64 BOARD
CCD-TR530E/TR550E CN202 24P
CCD-TR570E/TR650E/TR750E CN202 34P
LM-40 BOARD
M903 LOADING MOTOR
M901 DRUM MOTOR
SL-38 BOARD
VIDEO HEAD
A-MECHA
LS-33 BOARD
S001 MODE
S005 CC DOWN
09

note A/B BOARD
A: Board name of CCD-TR570E/TR650E/TR750E
B: Board name of CCD-TR530E/TR550E


16
17
18
19
20
CN903 16P
V VDD 1
VSS 2
VCK2 3
VCK1 4
VST 5
EN 6
CLR 7
HST 8
HCK2 9
HCK1 10
H VDD 11
B 12
R 13
G 14
COM 15
N.C. 16
COLOR LCD UNIT
CONTROL SWITCH BLOCK (CK)
BU101 BUZZER
LITHIUM BATTERY
CN101 4P
1 LI 3V
2 GND
3 BUZZER
4 GND
ZB-2 BOARD
STBY 2
EJECT 1
CN501 24P
COM3 24
COM2 23
COM1 22
COM0 21
SEG0 20
SEG1 19
SEG2 18
SEG3 17
SEG4 16
SEG5 15
SEG6 14
SEG7 13
SEG8 12
SEG9 11
SEG10 10
SEG11 9
SEG12 8
SEG13 7
SEG14 6
SEG15 5
SEG16 4
SEG17 3
SEG18 2
SEG19 1
CCD-TR750E
LCD
CONTROL SWITCH BLOCK (FK)
CN504 48P
HP L OUT 41
HP R OUT 42
HP GND 39
LANC DC 40
CAM D/D ON 37
LANC SIG 38
DRUM ERR 35
VTR D/D ON 36
EVF 5V 33
CAP ERR 34
EVF UNREG 31
EVF 15V 32
AU 5V 29
EVF UNREG GND 30
SS 3.6V 27
VTR UNREG 28
CAM -9V 25
REG GND 26
D 5V 23
REG GND 24
CAM 15V 21
REG GND 22
CAM 5V 19
CAM 5V 20
VID 5V 17
VID 5V 18
D3.6V 15
D3.6V 16
MT5V 13
R/P 5V 14
DRUM VS 11
MT5V 12
CAP VS 9
DRUM VS 10
MOTOR UNREG 7
CAP VS 8
MOTOR UNREG 5
MT UNREG GND 6
MT5V 3
MT UNREG GND 4
RFU DC OUT 1
MT UNREG GND 2
DD-60/66 BOARD
CN901 48P
42 HP R OUT
41 HP L OUT
40 LANC DC
39 HP GND
38 LANC SIG
37 CAM D/D ON
36 VTR D/D ON
35 DRUM ERR
34 CAP ERR
33 EVF 5V
32 EVF 15V
31 EVF UNREG
30 EVF UNREG GND
29 AU 5V
28 VTR UNREG
27 SS 3.6V
26 REG GND
25 CAM -9V
24 REG GND
23 D 5V
22 REG GND
21 CAM 15V
20 CAM 5V
19 CAM 5V
18 VID 5V
17 VID 5V
16 D3.6V
15 D3.6V
14 R/P 5V
13 MT5V
12 MT5V
11 DRUM VS
10 DRUM VS
9 CAP VS
8 CAP VS
7 MOTOR UNREG
6 MT UNREG GND
5 MOTOR UNREG
4 MT UNREG GND
3 MT5V
2 MT UNREG GND
1 RFU DC OUT
J902
LANC
CCD-TR570E/TR650E/TR750E
J903
PHONES
CCD-TR530E/TR550E
J903
EARPHONE
J901
BATTERY TERMINAL
CN502 15P
1 T/E SENS
2 MT 5V
3 TOP LED
4 END LED
5 T REEL (+)
6 T REEL (-)
7 REEL HALL COM
8 S REEL (+)
9 S REEL (-)
10 13U/7U
11 13U/10U
12 SS GND
13 MP/ME
14 MP/MP-HG
15 REC PROF
LS-33 BOARD
M902
CAPSTAN MOTOR
FG
M
CN511 6P
1 UNREG GND
2 CAP VS
3 MT UNREG
4 STBY
5 CAP FWD / RVS
6 CAP FG

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ▨ : Pattern from the side which enables seeing.
  (The other layers'patterns are not indicated.)
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ○: Through hole .

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ⊏∿⊐ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ⊔ : adjustment for repeair.
- ━━ : B+ Line.
- ╍╍╍ : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

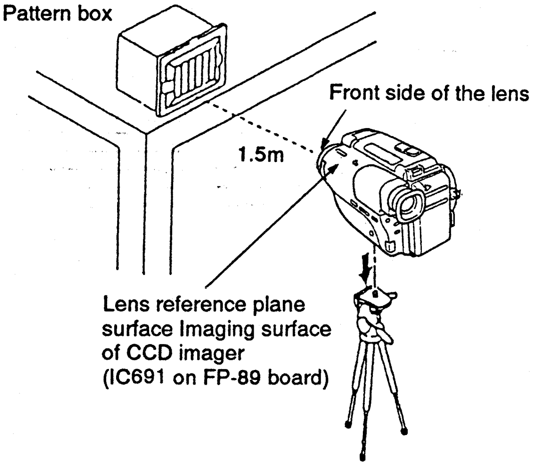
When indicating parts by reference number, please include the board name.

- Australian model is abbreviated as AUS.

• Measuring conditions voltage value and waveform.
(CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
Front side of the lens
1.5m
Lens reference plane surface Imaging surface of CCD imager (IC691 on FP-89 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

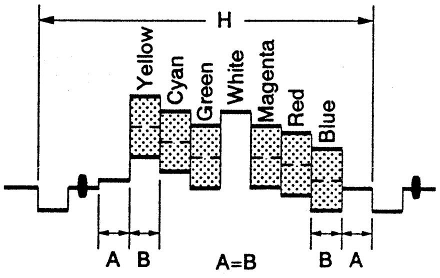


Fig. a (Video output terminal output waveform)

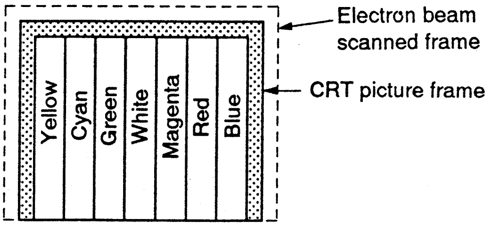


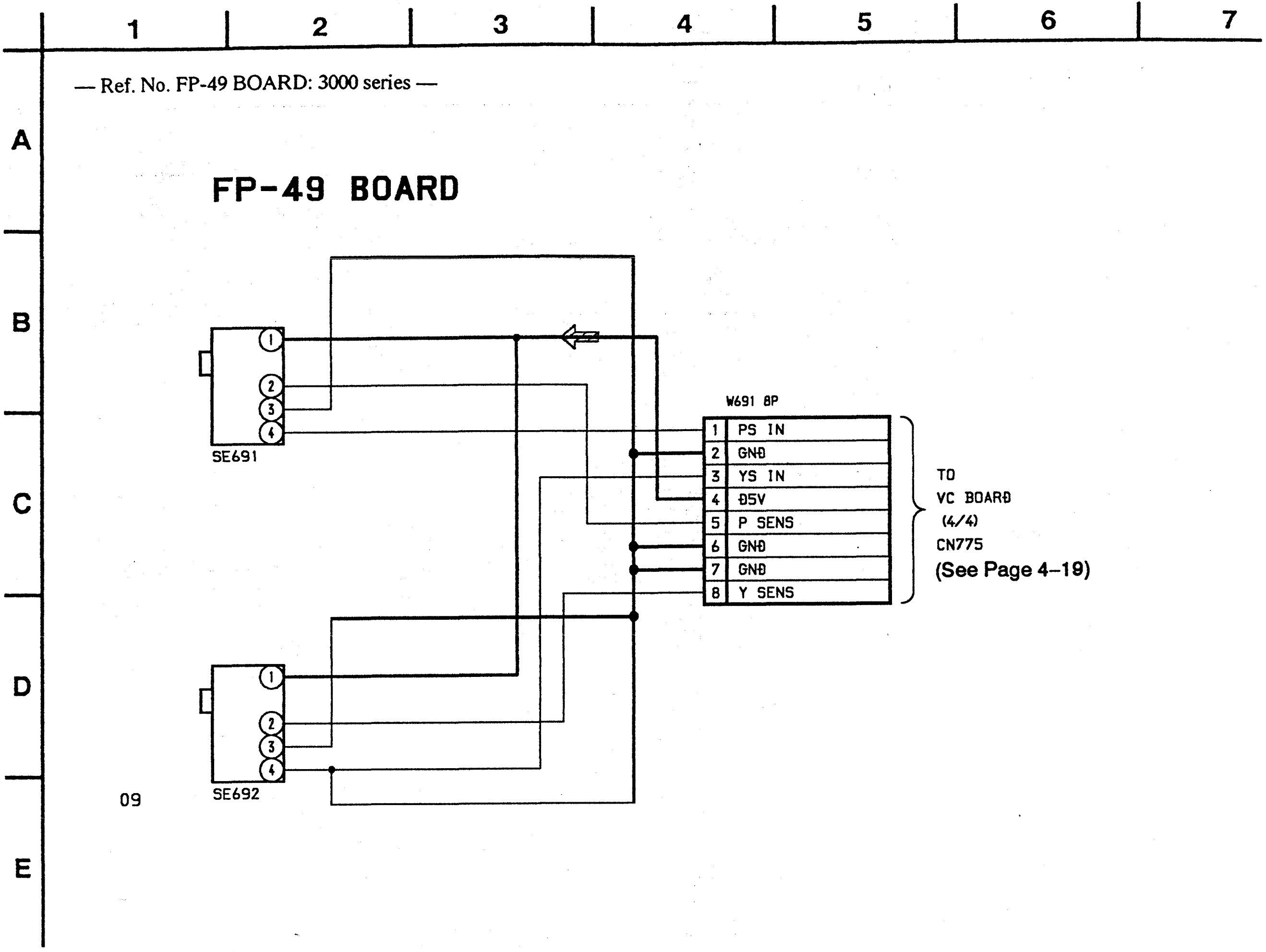
Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, AUDIO, LCD CONTROL)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note: Refer to "3-1-4. How to set the REC mode in the model with out REC switch (Except CCD-TR750E E, Australian model) " in 7-3. VIDEO SECTION ADJUSTMENTS. (See 7-34)

FP-49 (STEADY SHOT SENSOR) SCHEMATIC DIAGRAM (TR530E/TR550E/TR570E/TR750E)



— Ref. No. FP-49 BOARD: 3000 series —

FP-49 BOARD

1
2
3
4
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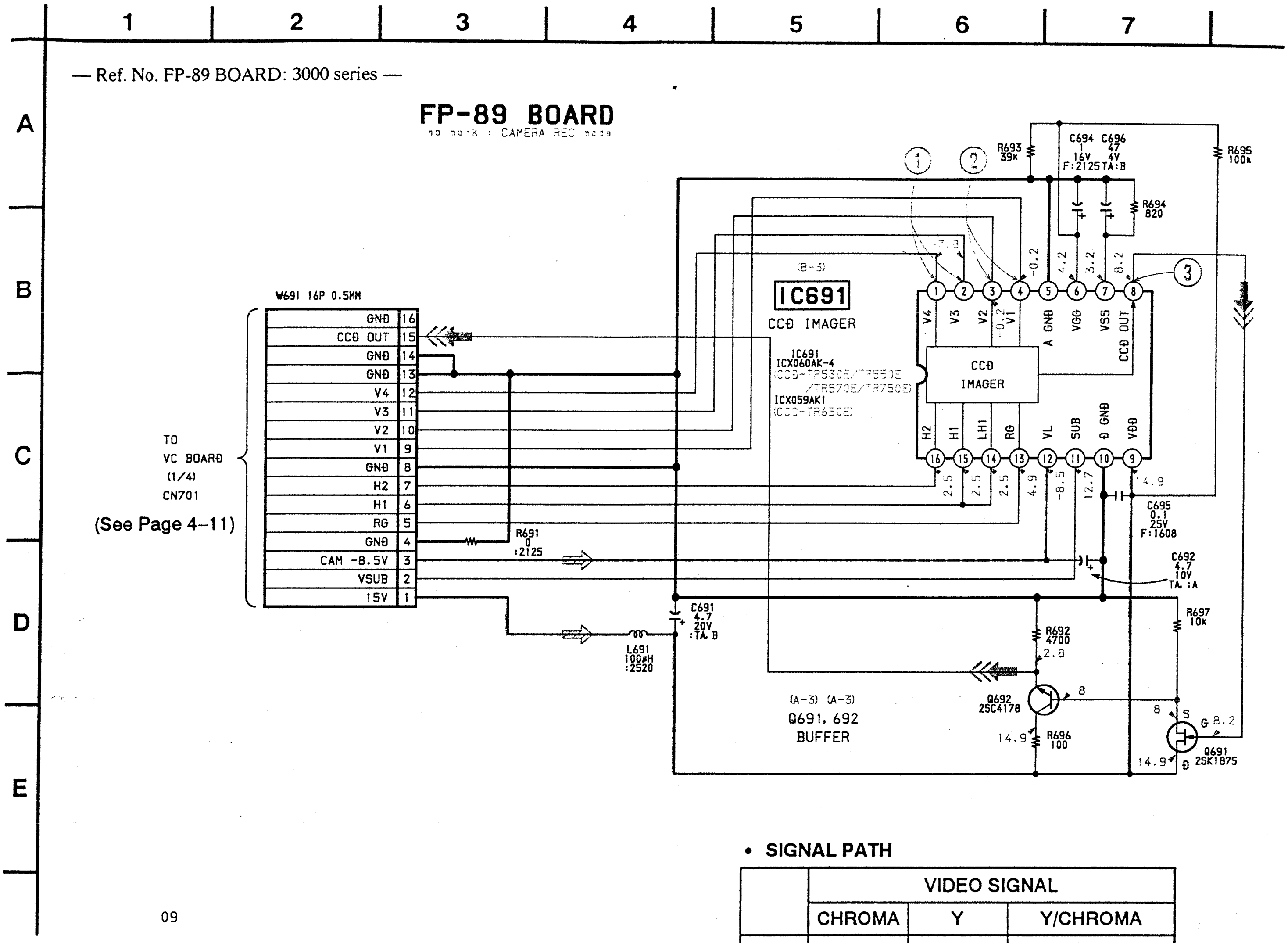
7
A
B
C
D
E
SE691
SE692
W691 8P
1 PS IN
2 GND
3 YS IN
4 D5V
5 P SENS
6 GND
7 GND
8 Y SENS
TO
VC BOARD
(4/4)
CN775
(See Page 4-19)
09

FP-89 (CCD IMAGER) SCHEMATIC DIAGRAM


1
2
3
4
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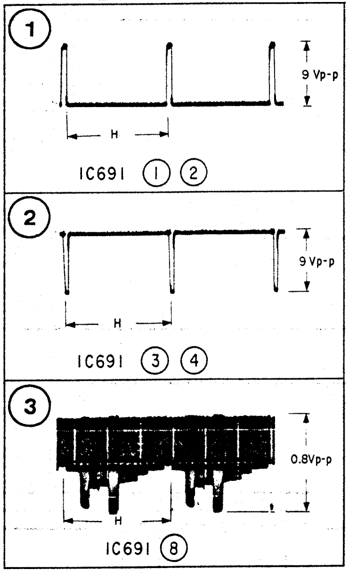
6
7
A
B
C
D
E
— Ref. No. FP-89 BOARD: 3000 series —
FP-89 BOARD
no mark : CAMERA REC mode
W691 16P 0.5MM
GND 16
CCD OUT 15
GND 14
GND 13
V4 12
V3 11
V2 10
V1 9
GND 8
H2 7
H1 6
RG 5
GND 4
CAM -8.5V 3
VSUB 2
15V 1
TO VC BOARD (1/4) CN701
(See Page 4-11)
R691 0 :2125
L691 100µH :2520
C691 4.7 20V :TA B
(B-5)
IC691
CCD IMAGER
IC691 ICX060AK-4
ICX059AK1
CCD IMAGER
V4
V3
V2
V1
A GND
VGG
VSS
CCD OUT
H2
H1
LH1
RG
VL
SUB
ɸ GND
VDD
R693 39k
C694 1 16V
C696 47 4V
F:2125TA:B
R694 820
R695 100k
C695 0.1 25V F:1608
C692 4.7 10V TA :A
R697 10k
R692 4700
R696 100
Q692 2SC4178
Q691 2SK1875
(A-3) (A-3)
Q691, 692 BUFFER
-7.3
-0.2
4.2
3.2
8.2
2.5
2.5
2.5
4.9
-8.5
12.7
14.9
2.8
8
8
G 8.2
S
D
14.9
14.9
09

- SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇛
PB			

FP-89 BOARD

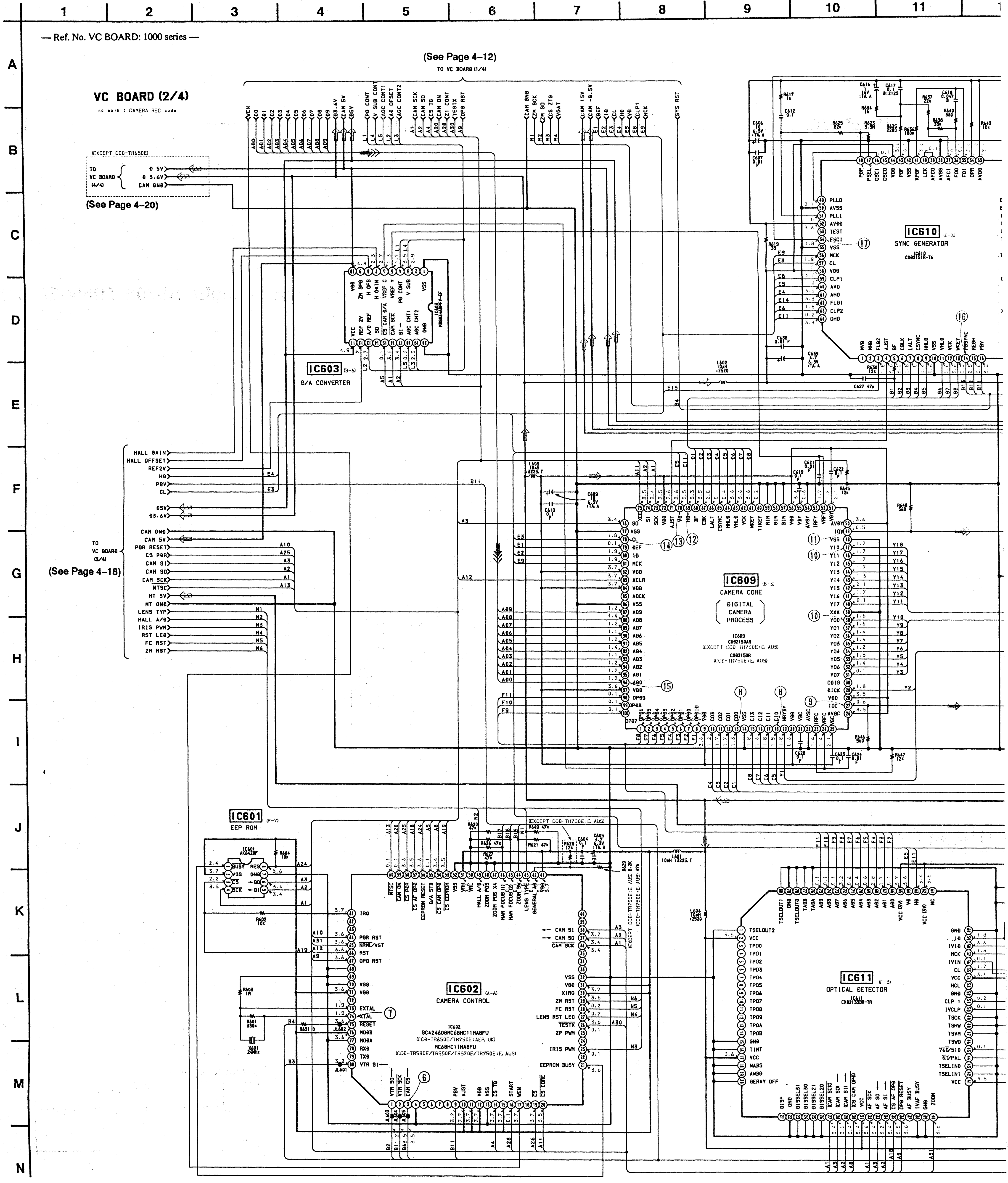


Note on the CCD Imager replacement

- Some of this units require the correction data by the CCD imager (IC691 on FP-89 board), some do not.
  The correction data is input in F page and addresses 1D to 2C of the camera micro processor (IC602 on VC board), and also written on the CCD data label put on the shield case (upper) of the DD board.
  The correction data is not required for the CCD imager supplied for repair. Therefore, when replacing the CCD imager to which the CCD data label is put, remove the CCD data label and input 00 to F page and addresses 1D to 2C of the camera micro processor. Refer to the camera adjustment for input method.
- The CCD imager is not mounted for the already mounted FP-89 board supplied as the repair parts.
  When replacing the FP-89 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

VC (CAMERA) SCHEMATIC DIAGRAM

- Refer to page 4-9 for Printed Wiring Board.


— Ref. No. VC BOARD: 1000 series —
VC BOARD (2/4)
no mark : CAMERA REC mode
(See Page 4-12)
TO VC BOARD (1/4)
(EXCEPT CCD-TR650E)
TO VC BOARD (4/4)
Ø 5V
Ø 3.6V
CAM GND
(See Page 4-20)
TO VC BOARD (3/4)
(See Page 4-18)
HALL GAIN
HALL OFFSET
REF2V
HO
PBV
CL
Ø5V
Ø3.6V
CAM GND
CAM 5V
PGR RESET
CS PGR
CAM SI
CAM SO
CAM SCK
NTSC
MT 5V
MT GND
LENS TYP
HALL A/D
IRIS PWM
RST LED
FC RST
ZM RST
IC603 (B-6)
D/A CONVERTER
IC610 (C-4)
SYNC GENERATOR
IC610 CXD2151R-T6
IC609 (B-5)
CAMERA CORE
DIGITAL CAMERA PROCESS
IC609 CXD2150AR (EXCEPT CCD-TR750E:E, AUS)
CXD2150R (CCD-TR750E:E, AUS)
IC601 (F-7)
EEP ROM
IC601 AK6420F
IC602 (A-6)
CAMERA CONTROL
IC602 SC424608MC68HC11MA8FU (CCD-TR650E/TR750E:AEP, UK)
MC68HC11MA8FU (CCD-TR530E/TR550E/TR570E/TR750E:E, AUS)
IC611 (J-5)
OPTICAL DETECTOR
IC611 CXD2153BR-TR
(EXCEPT CCD-TR750E:E, AUS)
1
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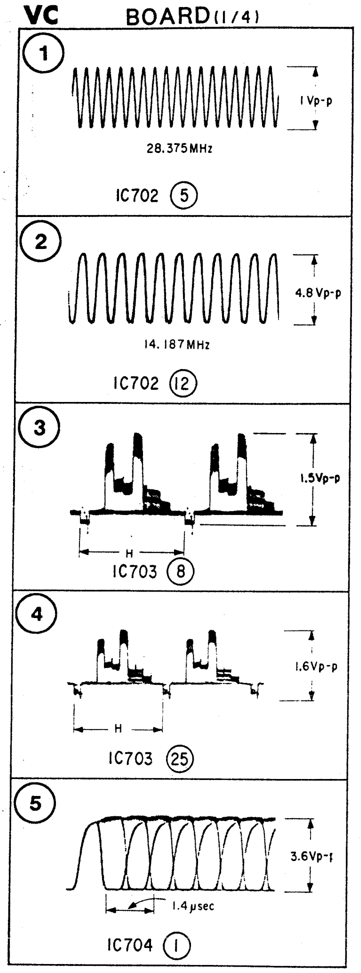
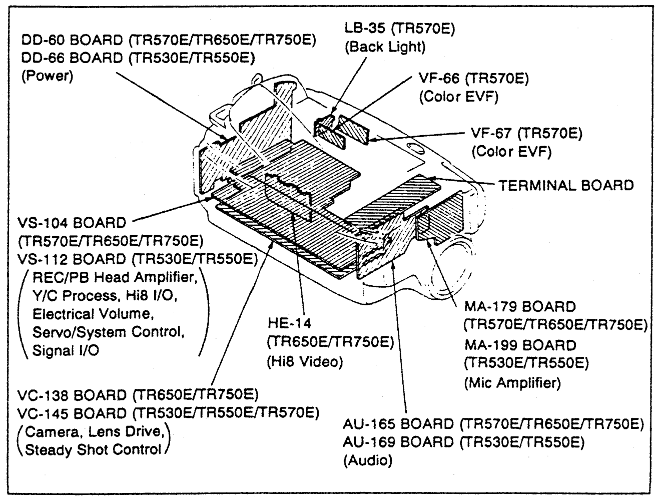
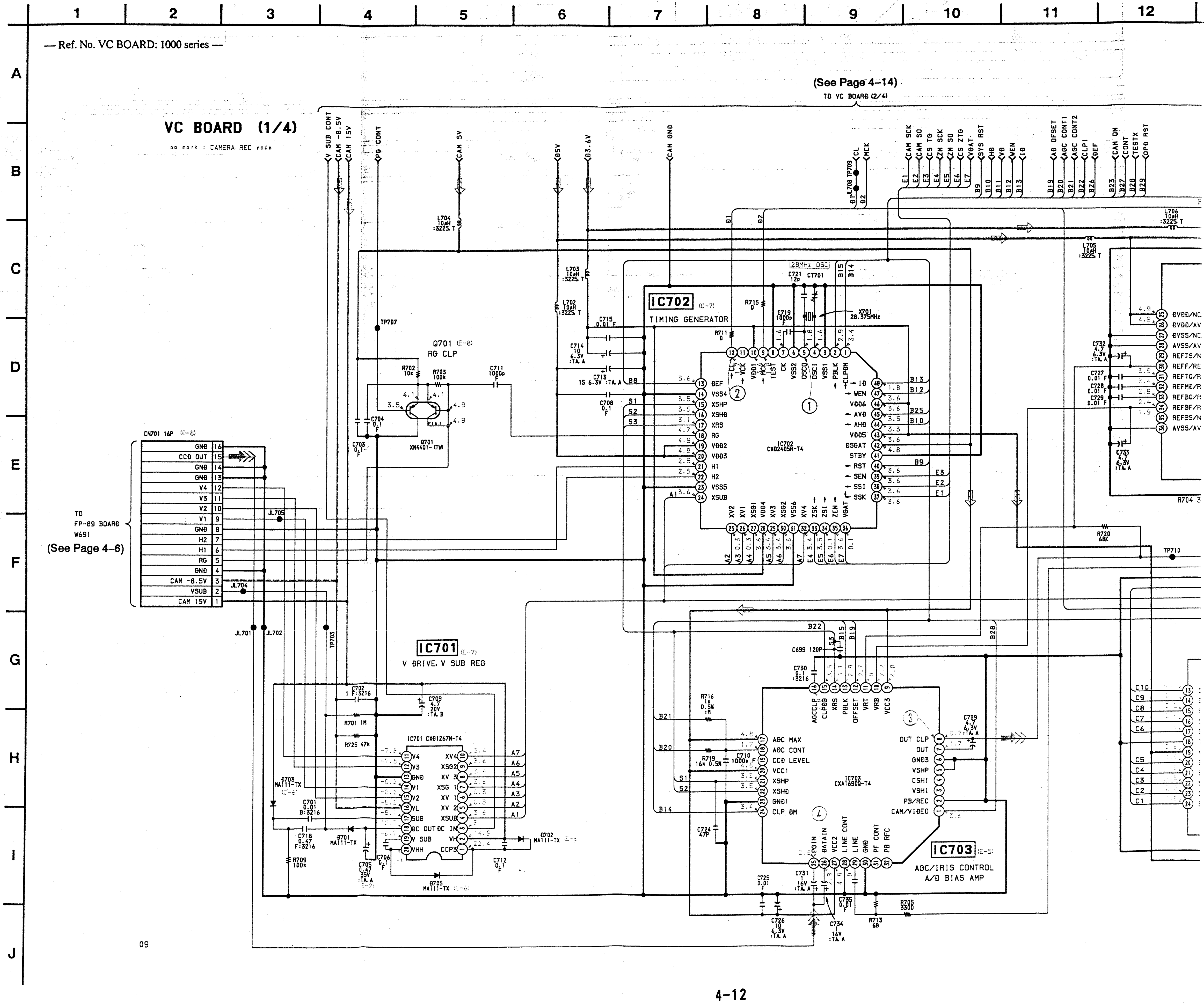
C
D
E
F
G
H
I
J
K
L
M
N




DD-60 BOARD (TR570E/TR650E/TR750E)
DD-66 BOARD (TR530E/TR550E)
(Power)
LB-35 (TR570E)
(Back Light)
VF-66 (TR570E)
(Color EVF)
VF-67 (TR570E)
(Color EVF)
TERMINAL BOARD
VS-104 BOARD
(TR570E/TR650E/TR750E)
VS-112 BOARD (TR530E/TR550E)
(REC/PB Head Amplifier, Y/C Process, Hi8 I/O, Electrical Volume, Servo/System Control, Signal I/O)
HE-14
(TR650E/TR750E)
(Hi8 Video)
MA-179 BOARD
(TR570E/TR650E/TR750E)
MA-199 BOARD
(TR530E/TR550E)
(Mic Amplifier)
VC-138 BOARD (TR650E/TR750E)
VC-145 BOARD (TR530E/TR550E/TR570E)
(Camera, Lens Drive, Steady Shot Control)
AU-165 BOARD (TR570E/TR650E/TR750E)
AU-169 BOARD (TR530E/TR550E)
(Audio)

VC (CAMERA) SCHEMATIC DIAGRAM


1
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3
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7
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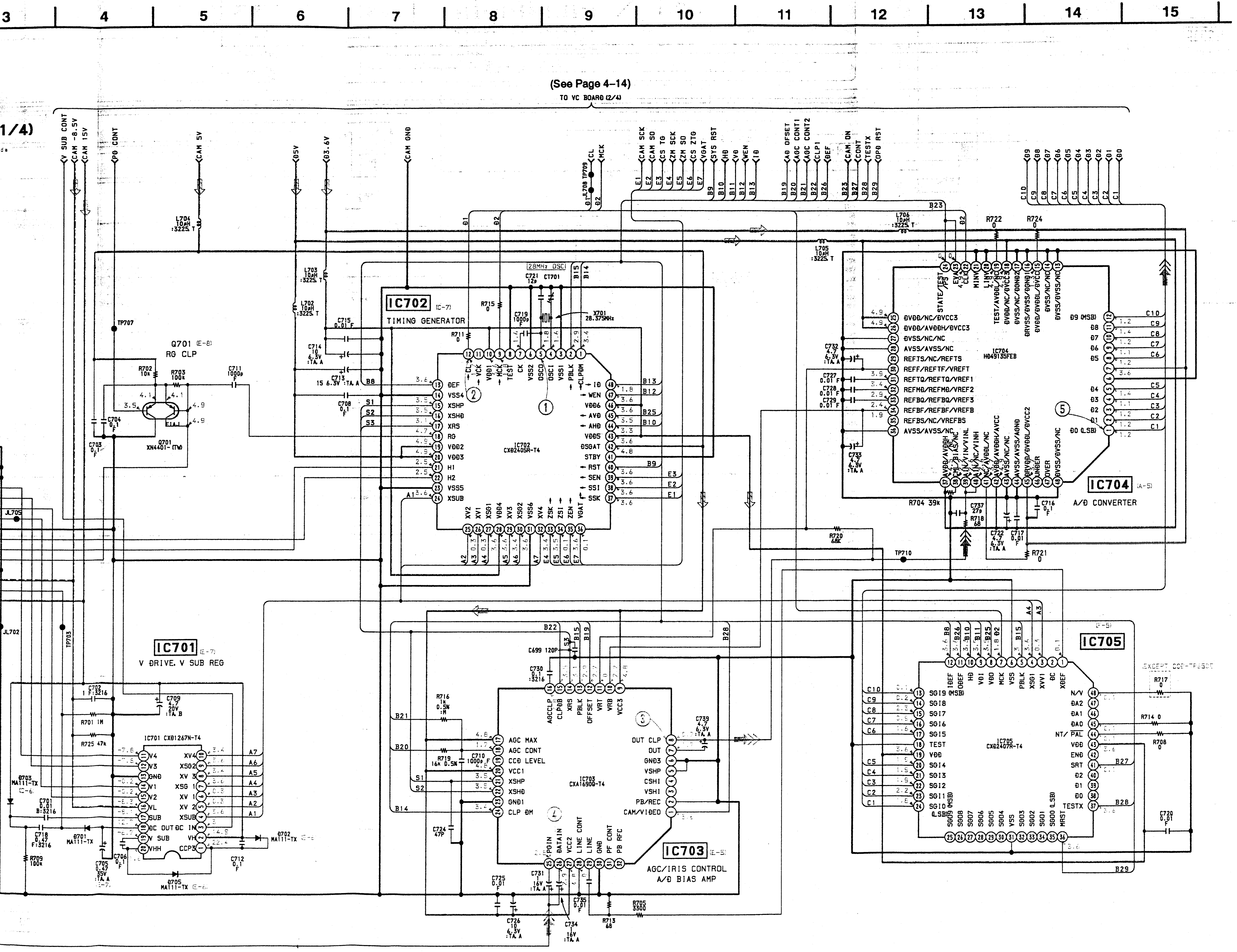
9
10
11
12
A
B
C
D
E
F
G
H
I
J
— Ref. No. VC BOARD: 1000 series —
VC BOARD (1/4)
no mark : CAMERA REC mode
(See Page 4–14)
TO VC BOARD (2/4)
V SUB CONT
CAM -8.5V
CAM 15V
PΘ CONT
CAM 5V
D5V
D3.6V
CAM GND
CL
MCK
CAM SCK
CAM SO
CS TG
ZM SCK
ZM SO
CS ZTG
VGAT
SYS RST
HD
VD
WEN
ID
AD OFSET
AGC CONT1
AGC CONT2
CLP1
DEF
CAM ON
CONT
TESTX
OPΘ RST
IC702 (C-7)
TIMING GENERATOR
IC702 CXD2405R-T4
X701 28.375MHz
28MHz OSC
Q701 (E-8)
RG CLP
Q701 XN4401-(TW)
TP707
L704 10μH
L703 10μH
L702 10μH
L705 10μH
L706 10μH
CN701 16P (Θ-8)
GND
CCD OUT
GND
GND
V4
V3
V2
V1
GND
H2
H1
RG
GND
CAM -8.5V
VSUB
CAM 15V
TO FP-89 BOARD W691
(See Page 4–6)
JL705
JL704
JL701
JL702
TP703
IC701 (E-7)
V DRIVE, V SUB REG
IC701 CXD1267N-T4
D703 MA111-TX
D701 MA111-TX
D702 MA111-TX
D705 MA111-TX
IC703 (E-5)
AGC/IRIS CONTROL
A/D BIAS AMP
IC703 CXA1690Q-T4
AGC MAX
AGC CONT
CCD LEVEL
VCC1
XSHP
XSHD
GND1
CLP DM
OUT CLP
OUT
GND3
VSHP
CSHI
VSHI
PB/REC
CAM/VIDEO
TP710
R720 68K
R704
09


3
4
5
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7
8
9
10
11
12
13
14
15
(See Page 4–14)
TO VC BOARD (2/4)
1/4)
V SUB CONT
CAM -8.5V
CAM 15V
PD CONT
CAM 5V
D5V
D3.6V
CAM GND
CL
MCK
CAM SCK
CAM SO
CS TG
ZH SCK
ZH SO
CS ZTO
VGAT
SYS RST
HD
VD
WEN
ID
AD OFSET
AGC CONT
AGC CONT2
CLP1
DEF
CAM ON
CCONT
TESTX
DPD RST
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
L704 10μH
L703 10μH
L702 10μH
L705 10μH
L706 10μH
TP707
TP709
TP710
Q701 RG CLP
Q701 XN4401-(TW)
R702 10k
R703 100k
C711 1000p
C715 0.01
C714 10 6.3V
C713 15 6.3V
C708 0.1
C704 0.1
C703 0.1
IC702
TIMING GENERATOR
IC702 CXD2405R-T4
28MHz OSC
C721 12p
CT701
X701 28.375MHz
R715 0
C719 1000p
R711 0
DEF
VSS4
XSHP
XSHD
XRS
RG
VDD2
VDD3
H1
H2
VSS5
XSUB
ID
WEN
VDD6
AVD
AHD
VDD5
DSGAT
STBY
RST
SEN
SSI
SSK
XV2
XV1
XSG1
VDD4
XV3
XSG2
VSS6
XV4
ZSK
ZSI
ZEN
VGAT
CL
VCK
VDD1
MCK
TEST
CK
VSS2
DSCO
OSCI
VSS1
PBLK
CLPDM
IC704
A/D CONVERTER
IC704 HD49135FEB
DVDD/NC/DVCC3
DVDD/AVDDH/DVCC3
DVSS/NC/NC
AVSS/AVSS/NC
REFTS/NC/REFTS
REFF/REFTF/VREFT
REFTQ/REFTQ/VREF1
REFMD/REFMD/VREF2
REFBQ/REFBQ/VREF3
REFBF/REFBF/VREFB
REFBS/NC/VREFBS
AVSS/AVSS/NC
D9 (MSB)
D0 (LSB)
R722 0
R724 0
R704 39k
C737 27p
R718 68
C716 0.1
C722 4.7 6.3V
C717 0.01
R720 68K
R721 0
C732 4.7 6.3V
C727 0.01
C728 0.01
C729 0.01
C733 4.7 6.3V
IC701
V DRIVE, V SUB REG
IC701 CXD1267N-T4
C702 1 F:3216
C709 4.7 20V
R701 1M
R725 47k
D703 MA111-TX
C701 0.01
C718 0.47
R709 100k
D701 MA111-TX
C705 0.47 35V
C706 0.1
D705 MA111-TX
D702 MA111-TX
C712 0.1
JL705
JL702
TP703
IC703
AGC/IRIS CONTROL
A/D BIAS AMP
IC703 CXA1690Q-T4
AGC MAX
AGC CONT
CCD LEVEL
VCC1
XSHP
XSHD
GND1
CLP DM
OUT CLP
OUT
GND3
VSHP
CSHI
VSHI
PB/REC
CAM/VIDEO
C699 120P
C730 0.1
R716 1k 0.5%
R719 16k 0.5%
C710 1000p
C724 47P
C725 0.01
C726 10 6.3V
C731 1 16V
C734 1 16V
C735 0.01
R713 68
R705 3300
C739 4.7 6.3V
IC705
IC705 CXD2407R-T4
SG19 (MSB)
SG18
SG17
SG16
SG15
TEST
VDD
SG14
SG13
SG12
SG11
SG10
N/V
DA2
DA1
DA0
NT/PAL
VDD
END
SRT
D2
D1
D0
TESTX
R717 0
EXCEPT CCD-TR530E
R714 0
R708 0
C720 0.01
B29
B28
B27

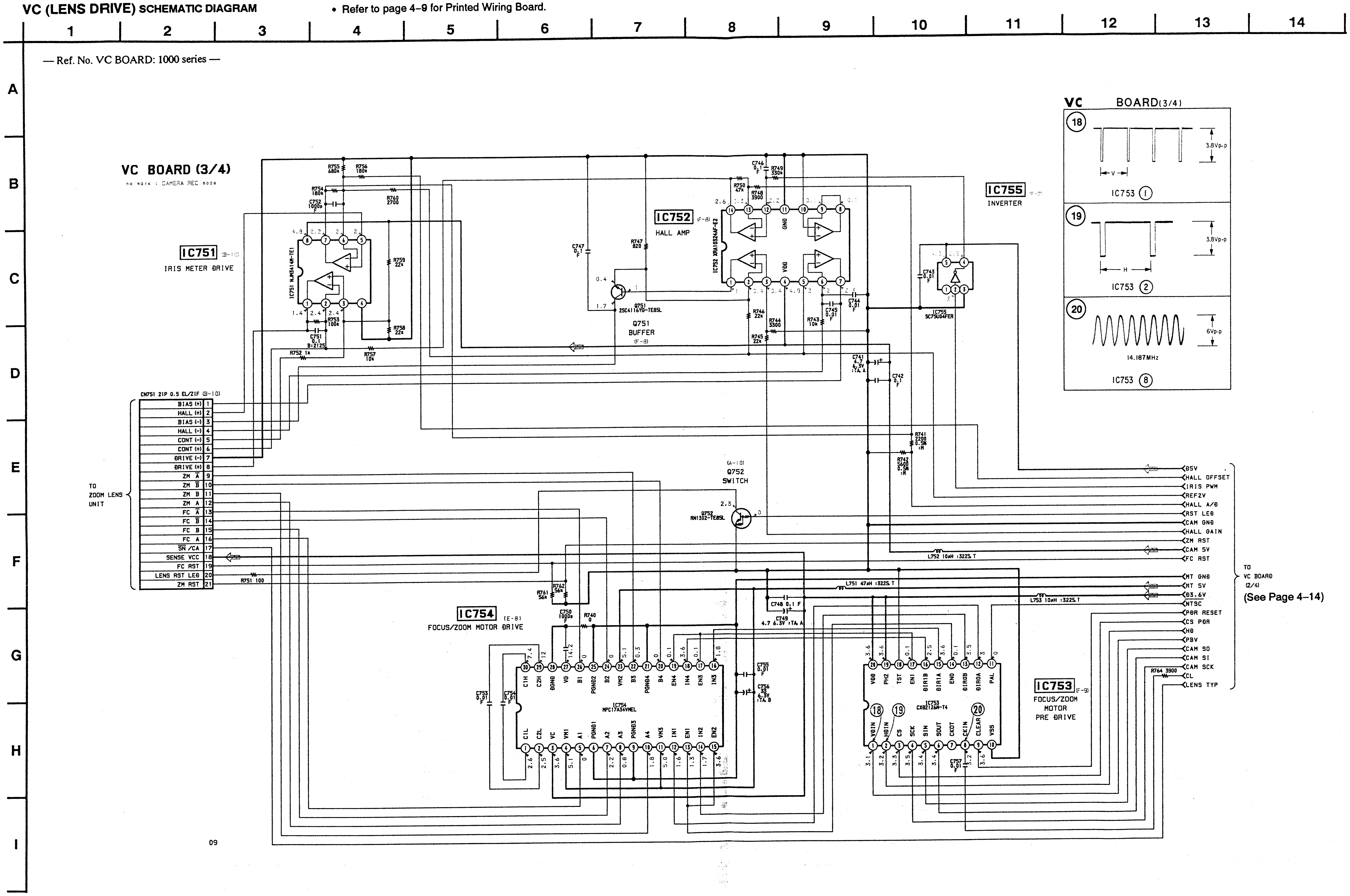
- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇒
PB			

VC (LENS DRIVE) SCHEMATIC DIAGRAM

• Refer to page 4–9 for Printed Wiring Board.

— Ref. No. VC BOARD: 1000 series —



1
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11
12
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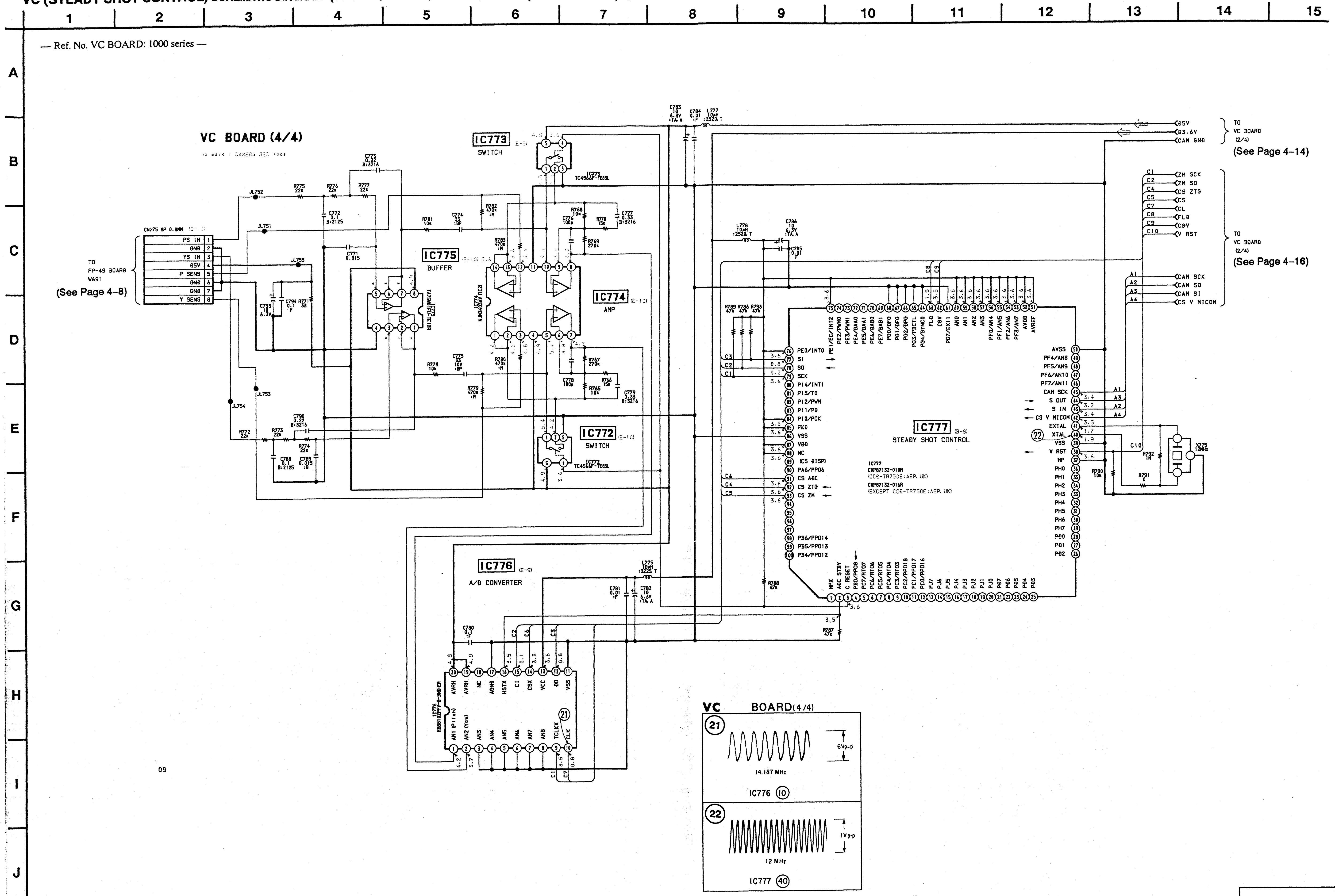
14
A
B
C
D
E
F
G
H
I
VC BOARD (3/4)
IC751 (B-10)
IRIS METER DRIVE
IC751 NJM3414M-TE1
IC752 (F-8)
HALL AMP
IC752 XRA10324MF-E2
Q751
2SC4116YG-TE85L
Q751
BUFFER
(F-8)
IC755 (F-7)
INVERTER
IC755 SC7SU04FER
CN751 21P 0.5 EL/ZIF (B-10)
BIAS (+) 1
HALL (+) 2
BIAS (−) 3
HALL (−) 4
CONT (−) 5
CONT (+) 6
DRIVE (−) 7
DRIVE (+) 8
ZM Ā 9
ZM B̄ 10
ZM B 11
ZM A 12
FC Ā 13
FC B̄ 14
FC B 15
FC A 16
SN̄ /CA 17
SENSE VCC 18
FC RST 19
LENS RST LED 20
ZM RST 21
TO ZOOM LENS UNIT
R751 100
(A-10)
Q752
SWITCH
Q752
RN1302-TE85L
IC754 (E-8)
FOCUS/ZOOM MOTOR DRIVE
IC754
MPC17A34VMEL
C1H
C2H
BGND
VG
B1
PGND2
B2
VM2
B3
PGND4
B4
EN4
IN4
EN3
IN3
C1L
C2L
VC
VM1
A1
PGND1
A2
A3
PGND3
A4
VM3
IN1
EN1
IN2
EN2
L751 47μH :3225 T
L752 10μH :3225 T
L753 10μH :3225 T
IC753 (F-9)
FOCUS/ZOOM MOTOR PRE DRIVE
IC753
CX82126N-T4
VDD
PH2
TST
EN1
DIR1B
DIR1A
END
DIR0B
DIR0A
PAL
VDIN
HDIN
CS
SCK
SIN
SOUT
CKOT
CKIN
CLEAR
VSS
R764 3900
D5V
HALL OFFSET
IRIS PWM
REF2V
HALL A/D
RST LED
CAM GND
HALL GAIN
ZM RST
CAM 5V
FC RST
MT GND
MT 5V
D3.6V
NTSC
POR RESET
CS POR
HD
PBV
CAM SO
CAM SI
CAM SCK
CL
LENS TYP
TO VC BOARD (2/4)
(See Page 4–14)
VC BOARD(3/4)
18
3.8Vp-p
V
IC753 ①
19
3.8Vp-p
H
IC753 ②
20
6Vp-p
14.187MHz
IC753 ⑧
09

VC (STEADY SHOT CONTROL) SCHEMATIC DIAGRAM (TR530E/TR550E/TR570E/TR750E)

- Refer to page 4–9 for Printed Wiring Board.

— Ref. No. VC BOARD: 1000 series —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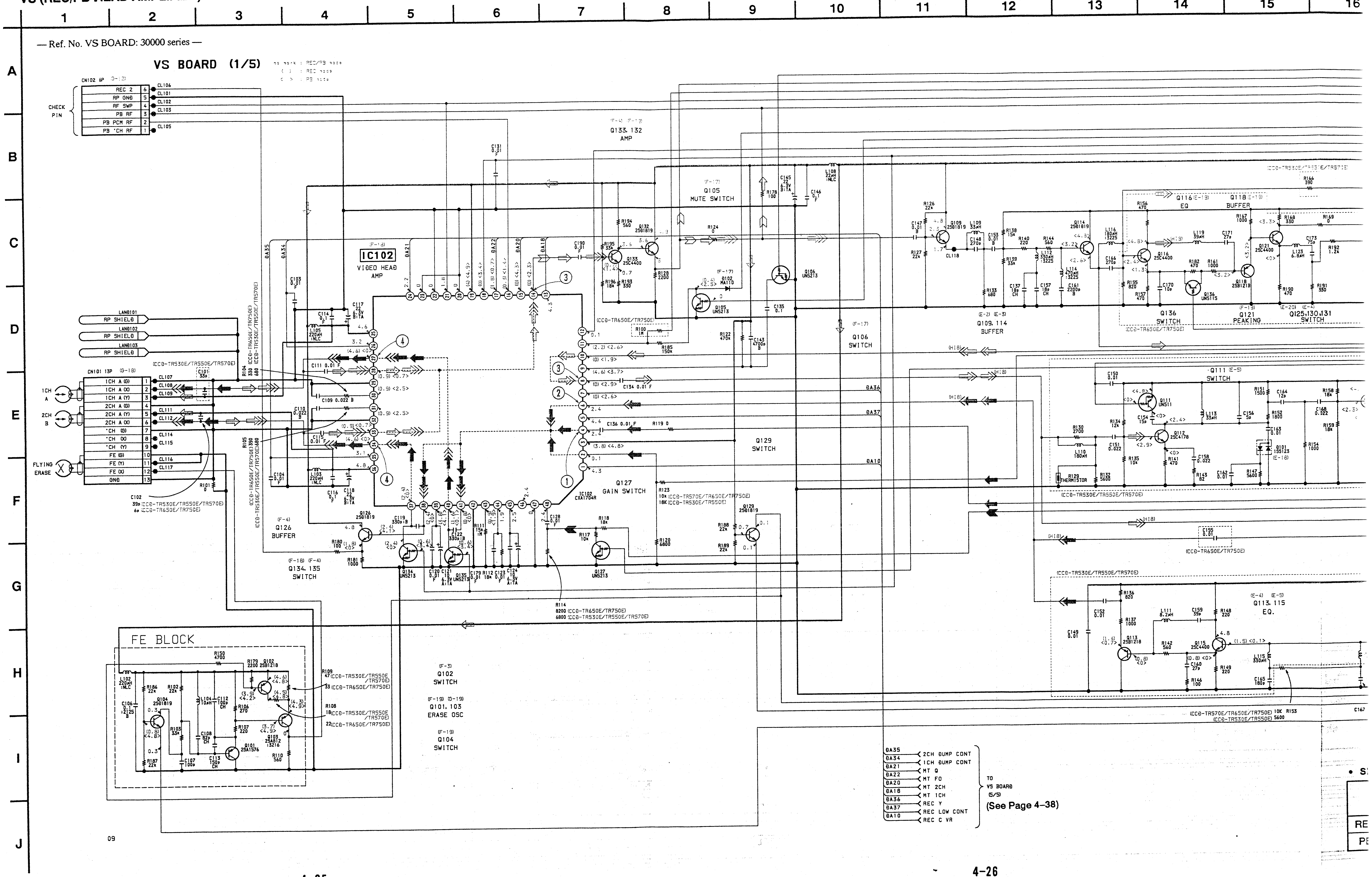
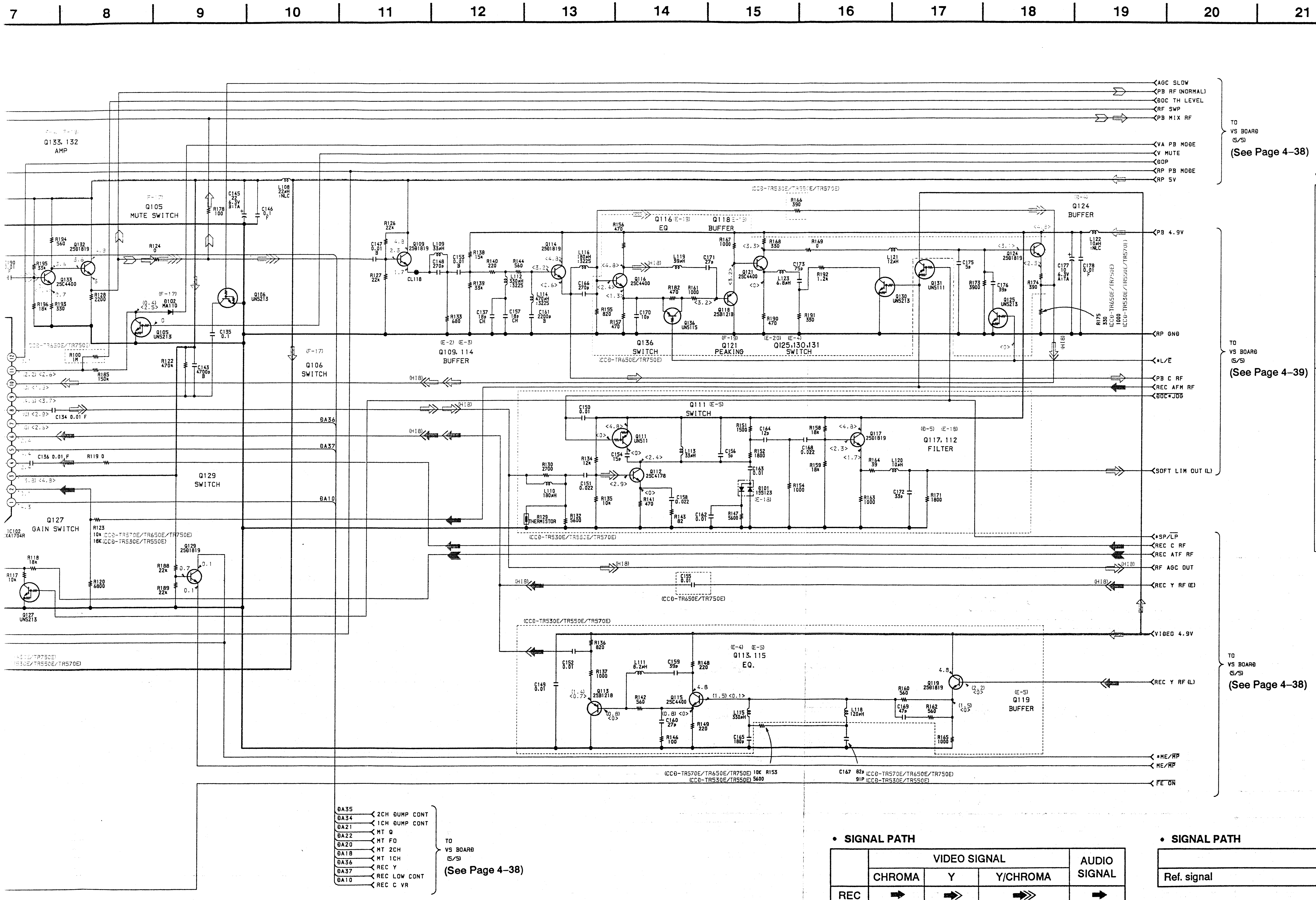
12
13
14
15
A
B
C
D
E
F
G
H
I
J
VC BOARD (4/4)
IC773
SWITCH
IC773 TC4S66F-TE85L
IC775
BUFFER
IC775 TA75W01FU-TE12R
IC774
AMP
IC774 NJM3404AM(TE2)
IC772
SWITCH
IC772 TC4S66F-TE85L
IC776
A/D CONVERTER
IC776 MB40102PFV-G-BND-ER
AVRH
AVRH
NC
AGND
HSTX
CI
CSX
VCC
DD
VSS
AN1 (Pitch)
AN2 (Yaw)
AN3
AN4
AN5
AN6
AN7
AN8
TCLKX
CLK
IC777
STEADY SHOT CONTROL
IC777 CXP87132-010R (CCD-TR750E:AEP, UK)
CXP87132-016R (EXCEPT CCD-TR750E:AEP, UK)
CN775 8P 0.8MM
PS IN
GND
YS IN
D5V
P SENS
GND
GND
Y SENS
TO FP-49 BOARD W691
(See Page 4–8)
D5V
D3.6V
CAM GND
TO VC BOARD (2/4)
(See Page 4–14)
ZM SCK
ZM SO
CS ZTG
CS
CL
FLD
CGV
V RST
TO VC BOARD (2/4)
(See Page 4–16)
CAM SCK
CAM SO
CAM SI
CS V MICOM
PE0/INT0
SI
SO
SCK
P14/INT1
P13/TO
P12/PWM
P11/PO
P10/PCK
PKO
VSS
VDD
NC
CS DISP
PA6/PPO6
CS AGC
CS ZTG
CS ZM
PB6/PPO14
PB5/PPO13
PB4/PPO12
AVSS
PF4/AN8
PF5/AN9
PF6/AN10
PF7/AN11
CAM SCK
S OUT
S IN
CS V MICOM
EXTAL
XTAL
VSS
V RST
MP
PH0
PH1
PH2
PH3
PH4
PH5
PH6
PH7
PE0
PE1
PE2
X775 12MHz
L777 10μH
L778 10μH
L775 10μH
JL751
JL752
JL753
JL754
JL755
4.9
3.6
3.5
0.8
4.2
3.7
3.4
3.2
1.7
1.9
09
VC BOARD(4/4)
㉑
6Vp-p
14.187 MHz
IC776 ⑩
㉒
1Vp-p
12 MHz
IC777 ㊵

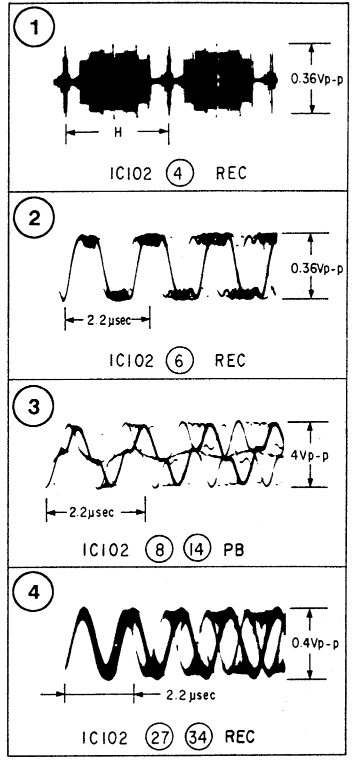
VS (REC/PB HEAD AMPLIFIER) SCHEMATIC DIAGRAM

— Ref. No. VS BOARD: 30000 series —


VS BOARD (1/5)
CHECK PIN
CN102 6P
REC 2
RP GND
RF SWP
PB RF
PB PCM RF
PB 'CH RF
CL106
CL101
CL102
CL103
CL105
LAN0101 RP SHIELD
LAN0102 RP SHIELD
LAN0103 RP SHIELD
CN101 13P
1CH A
2CH B
FLYING ERASE
1CH A (G)
1CH A (X)
1CH A (Y)
2CH A (G)
2CH A (Y)
2CH A (X)
'CH (G)
'CH (X)
'CH (Y)
FE (G)
FE (Y)
FE (X)
GND
IC102 VIDEO HEAD AMP
IC102 CXA1704R
Q133, 132 AMP
Q105 MUTE SWITCH
Q106 SWITCH
Q109, 114 BUFFER
Q116 EQ
Q118 BUFFER
Q136 SWITCH
Q121 PEAKING
Q125,130,131 SWITCH
Q111 SWITCH
Q113, 115 EQ.
Q127 GAIN SWITCH
Q129 SWITCH
Q126 BUFFER
Q134, 135 SWITCH
Q102 SWITCH
Q101, 103 ERASE OSC
Q104 SWITCH
FE BLOCK
0A35 2CH DUMP CONT
0A34 1CH DUMP CONT
0A21 MT Q
0A22 MT FO
0A20 MT 2CH
0A18 MT 1CH
0A36 REC Y
0A37 REC LOW CONT
0A10 REC C VR
TO VS BOARD (5/5)
(See Page 4-38)
A B C D E F G H I J
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
09


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
Q133, 132
AMP
Q105
MUTE SWITCH
Q132 2SD1819
Q133 2SC4400
R194 560
R195 33k
R196 18k
R193 330
R128 2200
R124 0
R178 100
C145 22 6.3V B:TA
C146 0.1 F
L108 22μH :NLC
D102 MA110
Q105 UN5213
Q106 UN5213
C135 0.1
(CCD-TR650E/TR750E)
R100 1M
R185 150k
R122 470k
C143 4700p B
C134 0.01 F
C136 0.01 F
R119 0
Q106
SWITCH
Q129
SWITCH
Q127
GAIN SWITCH
IC102
CXA1704R
R123
10k (CCD-TR570E/TR650E/TR750E)
18K (CCD-TR530E/TR550E)
Q129 2SD1819
R188 22k
R189 22k
R118 18k
R117 10k
R120 6800
Q127 UN5213
0A36
0A37
0A10
R126 22k
C147 0.01 B
R127 22k
Q109 2SD1819
L109 33μH
C148 270p
CL118
C153 0.01 B
R138 15k
R139 33k
R140 220
R144 560
L112 330μH :3225
R133 680
C137 18p CH
C157 18p CH
L114 470μH :3225
C161 2200p B
Q114 2SD1819
L116 180μH :3225
C166 270p
(E-2) (E-3)
Q109, 114
BUFFER
Q116 (E-19)
EQ
Q118 (E-19)
BUFFER
R156 470
R155 820
R157 470
Q116 2SC4400
C170 10p
L119 39μH
C171 27p
R182 470
R161 1000
Q136 UN5115
Q118 2SB1218
R167 1000
Q121 2SC4400
R168 330
R169 0
C173 75p
L123 6.8μH
R192 1.2k
R190 470
R191 330
L121 12μH
Q130 UN5213
Q131 UN5111
C175 5p
R173 3900
C176 39p
Q125 UN5213
Q124 2SD1819
R174 390
C177 10 6.3V A:TA
C178 0.01 F
L122 10μH :NLC
R175 330 (CCD-TR650E/TR750E) 1000 (CCD-TR530E/TR550E/TR570E)
(CCD-TR530E/TR550E/TR570E)
R166 390
(D-4)
Q124
BUFFER
Q136
SWITCH
(F-19)
Q121
PEAKING
(E-20) (E-4)
Q125,130,131
SWITCH
(CCD-TR650E/TR750E)
(H18)
Q111 (E-5)
SWITCH
C150 0.01
Q111 UN511
C154 15p
L113 33μH
C156 5p
R151 1500
C164 12p
R152 1800
C163 0.01
D101 1SS123 (E-18)
C168 0.022
R158 18k
R159 18k
R154 1000
Q117 2SD1819
R164 39
L120 10μH
C172 33p
R171 1800
R163 1000
(D-5) (E-18)
Q117, 112
FILTER
R130 2700
L110 180μH
C151 0.022
R134 12k
Q112 2SC4178
R135 10k
R141 470
C158 0.022
R143 82
C162 0.01
R147 5600
R129 THERMISTOR
R132 5600
(CCD-TR530E/TR550E/TR570E)
C155 0.01
(CCD-TR650E/TR750E)
(CCD-TR530E/TR550E/TR570E)
R136 820
C152 0.01
C149 0.01
R137 1000
Q113 2SB1218
L111 8.2μH
C159 39p
R148 220
R142 560
Q115 2SC4400
C160 27p
R146 100
R149 220
L115 330μH
C165 180p
(E-4) (E-5)
Q113, 115
EQ.
L118 120μH
R160 560
C169 47p
R162 560
R165 1000
Q119 2SD1819
(E-5)
Q119
BUFFER
(CCD-TR570E/TR650E/TR750E) 10K R153
(CCD-TR530E/TR550E) 5600
C167 82p (CCD-TR570E/TR650E/TR750E)
91P (CCD-TR530E/TR550E)
AGC SLOW
PB RF (NORMAL)
DOC TH LEVEL
RF SWP
PB MIX RF
VA PB MODE
V MUTE
DOP
RP PB MODE
RP 5V
TO
VS BOARD
(5/5)
(See Page 4–38)
PB 4.9V
RP GND
*L/E
PB C RF
REC AFM RF
DOC*JOG
SOFT LIM OUT (L)
TO
VS BOARD
(5/5)
(See Page 4–39)
*SP/LP
REC C RF
REC ATF RF
RF AGC OUT
REC Y RF (E)
VIDEO 4.9V
REC Y RF (L)
*ME/MP
ME/MP
FE ON
TO
VS BOARD
(5/5)
(See Page 4–38)
0A35
0A34
0A21
0A22
0A20
0A18
0A36
0A37
0A10
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FO
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
TO
VS BOARD
(5/5)
(See Page 4–38)

VS BOARD(1/5)



- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡⋙	➡
PB	⇨	⇨»	⇨⋙	⇨

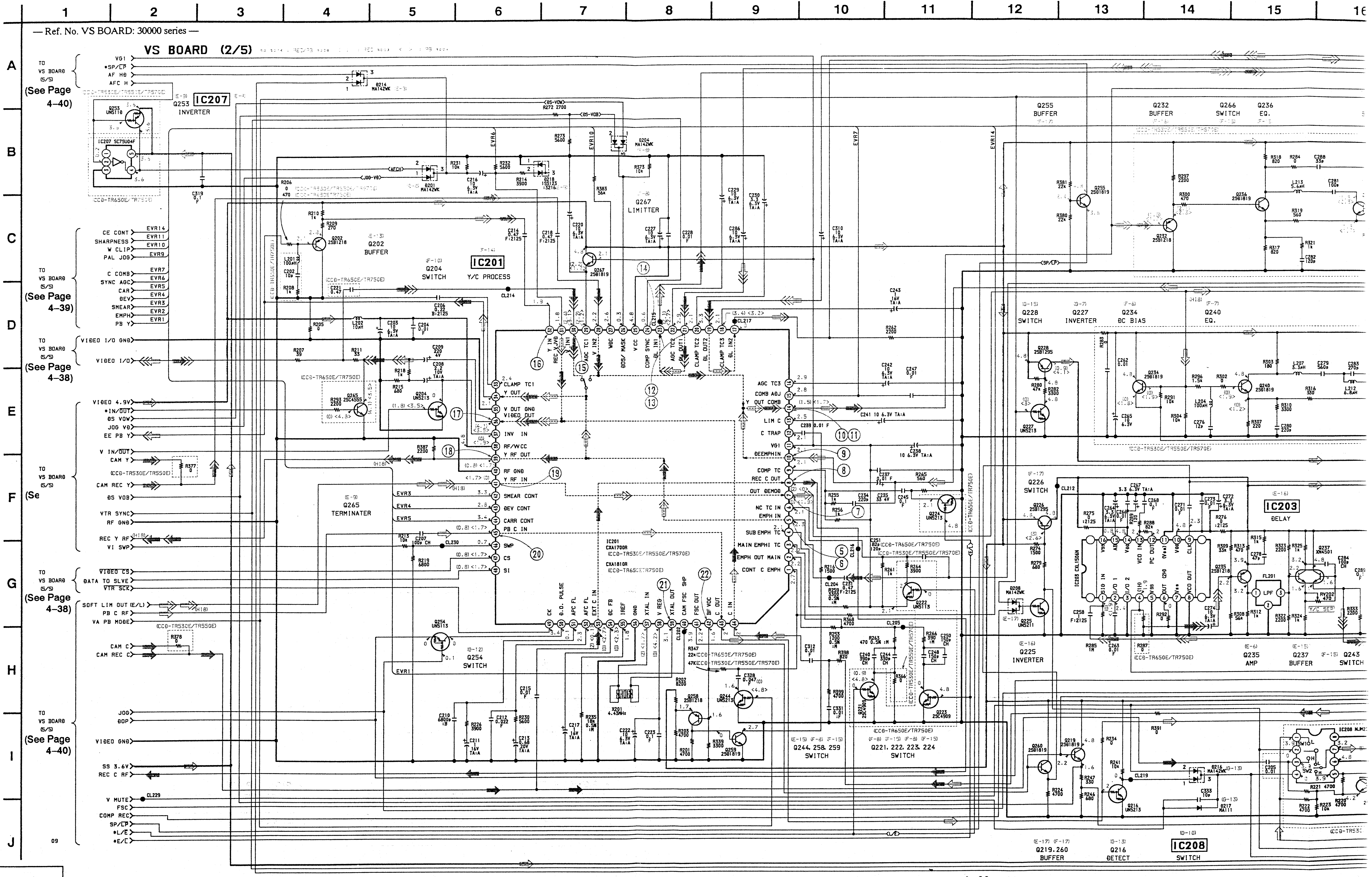
- **SIGNAL PATH**

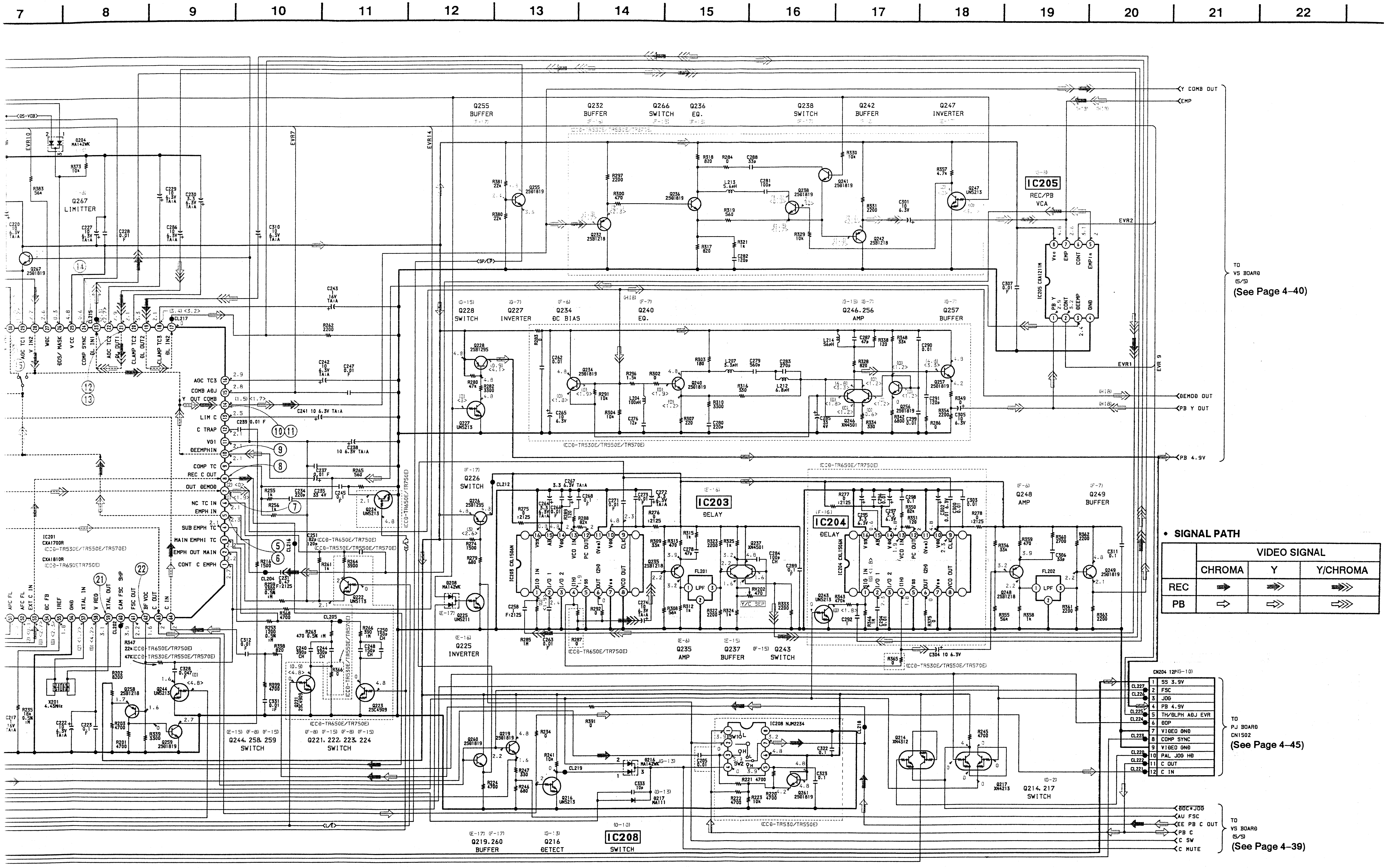
	REC	REC/PB	PB
Ref. signal	▶		▷

VS (Y/C PROCESS) SCHEMATIC DIAGRAM

- Refer to page 4-21 for Printed Wiring Board.

— Ref. No. VS BOARD: 30000 series —

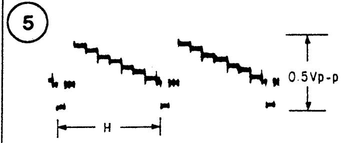

VS BOARD (2/5)
IC207 INVERTER
Q253 INVERTER
IC201 Y/C PROCESS
Q202 BUFFER
Q204 SWITCH
Q267 LIMITTER
Q265 TERMINATER
Q254 SWITCH
Q244, 258, 259 SWITCH
Q221, 222, 223, 224 SWITCH
IC201 CXA1700R (CCD-TR530E/TR550E/TR570E)
CXA1810R (CCD-TR650E/TR750E)
X201 4.43MHz
Q255 BUFFER
Q232 BUFFER
Q266 SWITCH
Q236 EQ.
Q228 SWITCH
Q227 INVERTER
Q234 DC BIAS
Q240 EQ.
Q226 SWITCH
IC203 DELAY
Q225 INVERTER
Q235 AMP
Q237 BUFFER
Q243 SWITCH
Q219, 260 BUFFER
Q216 DETECT
IC208 SWITCH
TO VS BOARD (5/5) (See Page 4-40)
TO VS BOARD (5/5) (See Page 4-39)
TO VS BOARD (5/5) (See Page 4-38)
TO VS BOARD (5/5) (See Page 4-38)
TO VS BOARD (5/5) (See Page 4-40)
VG1
SP/LP
AF H0
AFC H
CE CONT
SHARPNESS
W CLIP
PAL JOG
C COMB
SYNC AGC
CAR
DEV
SMEAR
EMPH
PB Y
VIDEO I/O GND
VIDEO I/O
VIDEO 4.9V
IN/OUT
DS VOW
JOG VD
EE PB Y
V IN/OUT
CAM Y
CAM REC Y
DS VOB
VTR SYNC
RF GND
REC Y RF
VI SWP
VIDEO CS
DATA TO SLVE
VTR SCK
SOFT LIM OUT (E/L)
PB C RF
VA PB MODE
CAM C
CAM REC C
JOG
DOP
VIDEO GND
SS 3.6V
REC C RF
V MUTE
FSC
COMP REC
SP/LP
L/E
E/C
CLAMP TC1
Y OUT
V OUT GND
VIDEO OUT
INV IN
RF/W CC
Y RF OUT
RF GND
Y RF IN
SMEAR CONT
DEV CONT
CARR CONT
PB C IN
SWP
CS
SI
AGC TC3
COMB ADJ
Y OUT COMB
LIM C
C TRAP
VG1
DEEMPHIN
COMP TC
REC C OUT
OUT DEMOD
NC TC IN
EMPH IN
SUB EMPH TC
MAIN EMPHI TC
EMPH OUT MAIN
CONT C EMPH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
Q267 LIMITTER
Q255 BUFFER
Q232 BUFFER
Q266 SWITCH
Q236 EQ.
Q238 SWITCH
Q242 BUFFER
Q247 INVERTER
IC205 REC/PB VCA
Q228 SWITCH
Q227 INVERTER
Q234 DC BIAS
Q240 EQ.
Q246.256 AMP
Q257 BUFFER
Q226 SWITCH
IC203 DELAY
IC204 DELAY
Q248 AMP
Q249 BUFFER
Q225 INVERTER
Q235 AMP
Q237 BUFFER
Q243 SWITCH
Q244. 258. 259 SWITCH
Q221. 222. 223. 224 SWITCH
Q219.260 BUFFER
Q216 DETECT
IC208 SWITCH
Q214. 217 SWITCH
IC201 CXA1700R (CCD-TR530E/TR550E/TR570E)
CXA1810R (CCD-TR650E/TR750E)
AGC TC3
COMB ADJ
Y OUT COMB
LIM C
C TRAP
VG1
DEEMPHIN
COMP TC
REC C OUT
OUT DEMOD
NC TC IN
EMPH IN
SUB EMPH TC
MAIN EMPH1 TC
EMPH OUT MAIN
CONT C EMPH
Y COMB OUT
EMP
TO VS BOARD (5/5) (See Page 4–40)
DEMOD OUT
PB Y OUT
PB 4.9V
CN204 12P
1 SS 3.9V
2 FSC
3 JOG
4 PB 4.9V
5 TH/BLPH ADJ EVR
6 DOP
7 VIDEO GND
8 COMP SYNC
9 VIDEO GND
10 PAL JOG H0
11 C OUT
12 C IN
TO PJ BOARD CN1502 (See Page 4–45)
DOC+JOG
AU FSC
EE PB C OUT
PB C
C SW
C MUTE
TO VS BOARD (5/5) (See Page 4–39)
X201 4.43MHz
FL201 LPF
FL202 LPF
Y/C SEP
EVR2
EVR1
EVR 9
EVR7
EVR14
EVR10

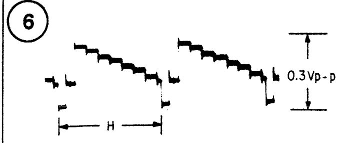
• **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	⇛
PB	⇨	⇨	⇨

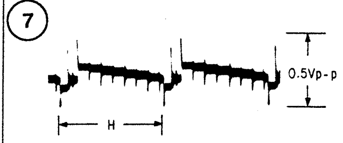
VS BOARD (2/5)

⑤


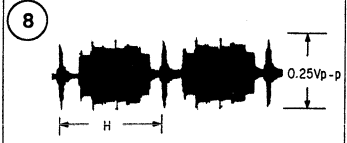
IC201 ⑤ REC

⑥


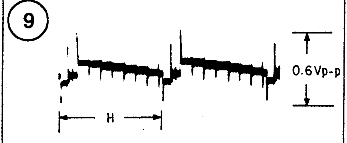
IC201 ⑤ PB

⑦


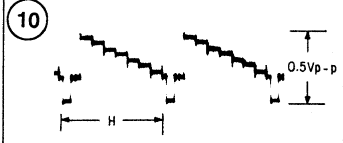
IC201 ⑦ PB

⑧


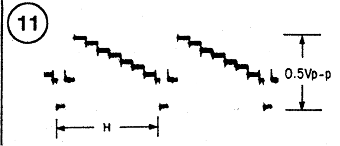
IC201 ⑧ REC

⑨


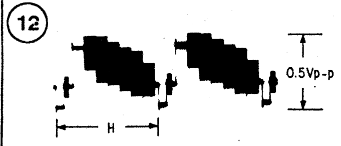
IC201 ⑩ PB

⑩


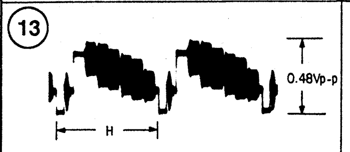
IC201 ⑭ REC

⑪


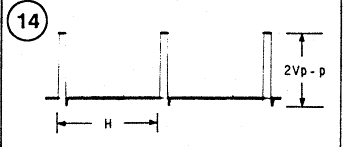
IC201 ⑭ PB

⑫


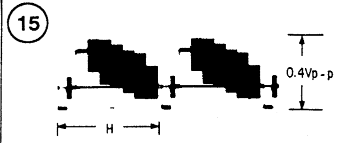
IC201 ㉑ ㉓ REC

⑬


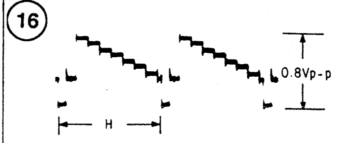
IC201 ㉑ ㉓ PB

⑭


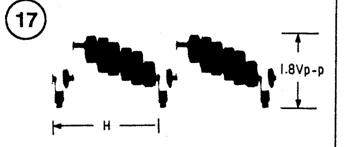
IC201 ㉔ REC/PB

⑮


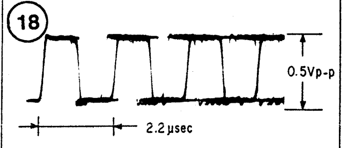
IC201 ㉚ REC

⑯


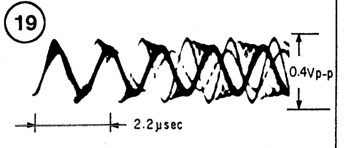
IC201 ㉜ PB

⑰


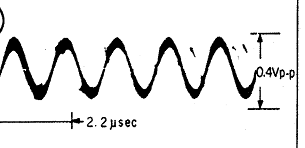
IC201 ㊱ PB

⑱


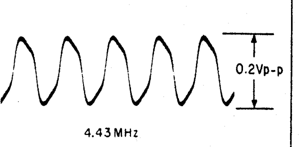
IC201 ㊴ REC

⑲


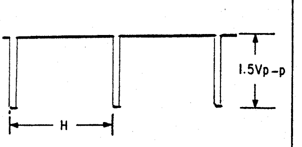
IC201 ㊶ PB

⑳


IC201 ㊺ PB

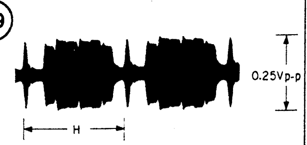
㉑


IC201 (59) REC/PB

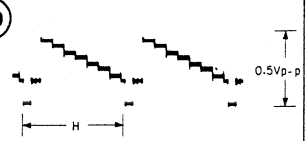
㉒


IC201 (62) REC/PB

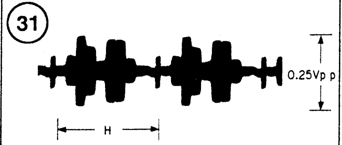
VS BOARD (3/5)

㉙


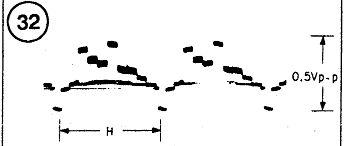
IC251 ③ ⑦ PB

㉚


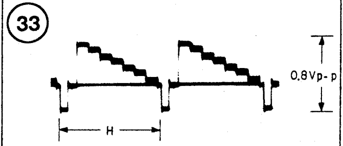
IC251 ⑪ ⑬ PB

㉛


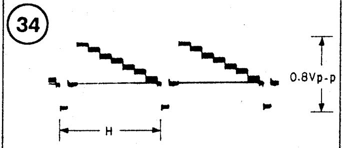
IC251 ⑮ ㉙ CAMERA

㉜


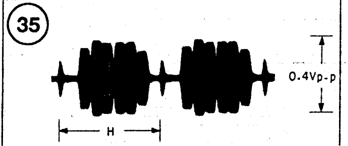
IC251 ⑰ ㉕ CAMERA

㉝


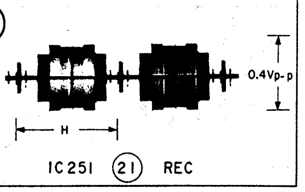
IC251 ⑲ PB

㉞


IC251 ⑲ REC

㉟


IC251 ㉑ PB

㊱


IC251 ㉑ REC

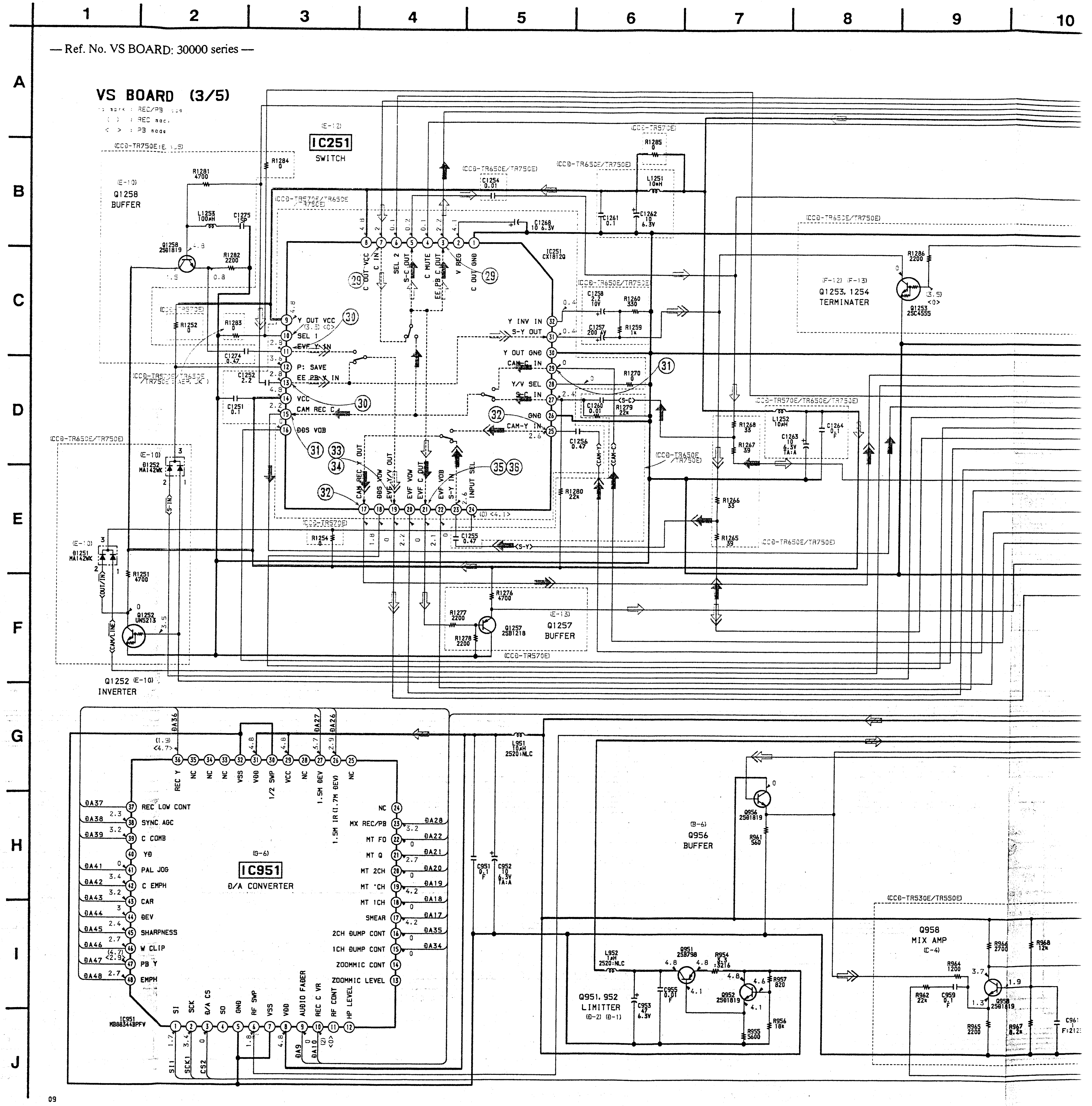
- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB		⇨	

VS (Hi 8 I/O, ELECTRIC VOLUME) SCHEMATIC DIAGRAM

- Refer to page 4-21 for Printed Wiring Board.

— Ref. No. VS BOARD: 30000 series —

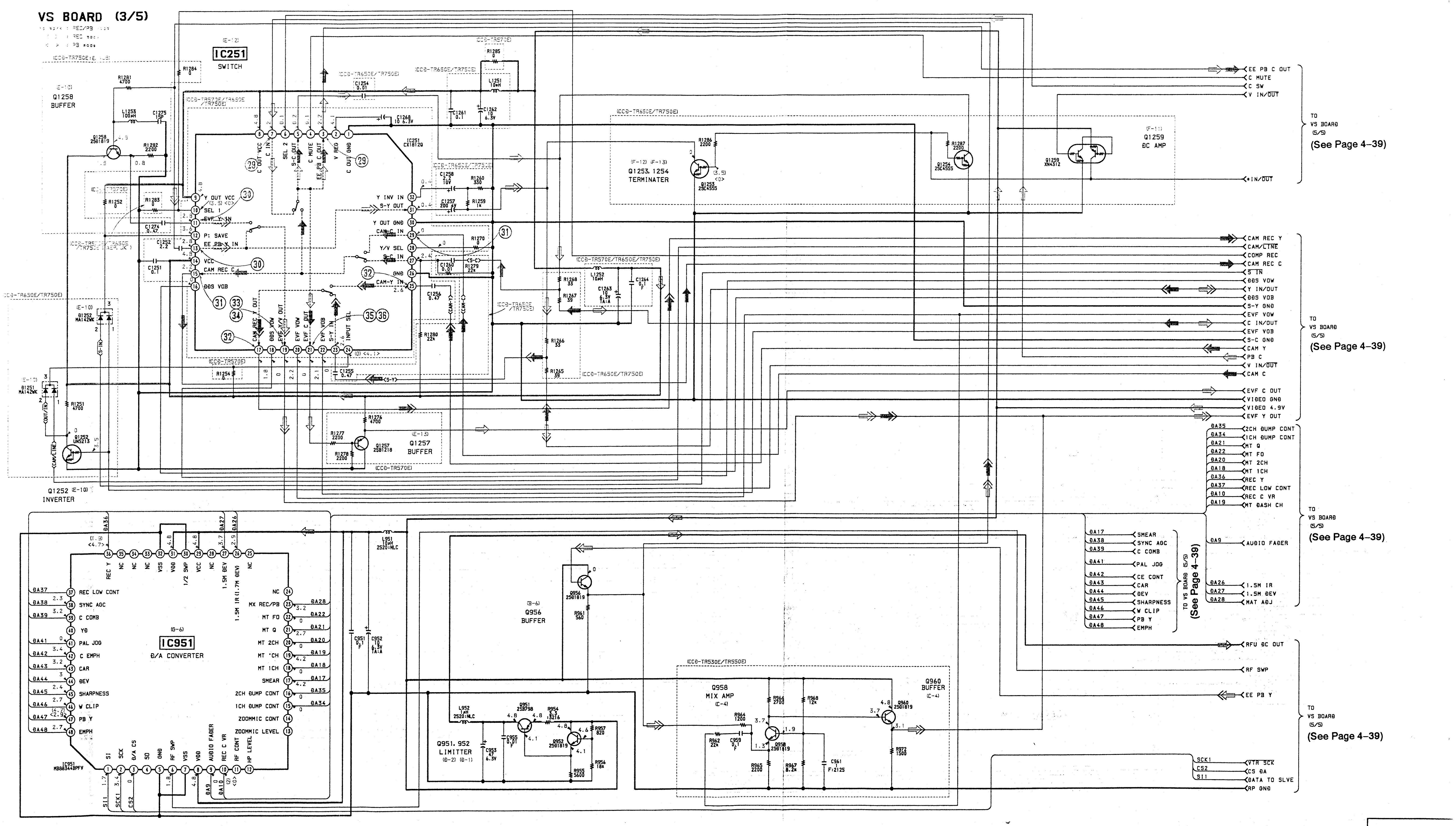

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
VS BOARD (3/5)
: REC/PB
( ) : REC mode
< > : PB mode
IC251
SWITCH
IC251 CX1812Q
Q1258 BUFFER
Q1258 2SB1819
R1281 4700
L1253 100μH
C1275
R1282 2200
R1284 0
R1283 0
R1252 0
C1274 0.47
C1252 2.2
C1251 0.1
C1254 0.01
L1251 10μH
C1261 0.1
C1262 10 6.3V
C1268 10 6.3V
R1285 0
C1258 2.2 10V
R1260 330
C1257 200
R1259 1k
C1266 0.01
R1279 22k
R1270 0
C1256 0.47
R1280 22k
R1254 0
C1255 0.47
R1276 4700
R1277 2200
R1278 2200
Q1257 2SB1218
Q1257 BUFFER
R1286 2200
Q1253, 1254 TERMINATER
Q1253 2SC4555
R1268 33
R1267 39
R1266 33
R1265 39
L1252 10μH
C1263 10 6.3V TA:A
C1264 0.1
D1252 MA142WK
D1251 MA142WK
R1251 4700
Q1252 UN5213
Q1252 INVERTER
C OUT VCC
C IN
SEL 2
S-C OUT
C MUTE
EE PB C OUT
V REG
C OUT GND
Y OUT VCC
SEL 1
EVF Y IN
P: SAVE
EE PB Y IN
VCC
CAM REC C
D09 VOB
Y INV IN
S-Y OUT
Y OUT GND
CAM C IN
Y/V SEL
S-C IN
GND
CAM-Y IN
CAM REC Y
D09 VOW OUT
EVF VOW
EVF C OUT
EVF VOB
S-Y IN
INPUT SEL
<S-Y>
<S-C>
CAM-Y
CAM-C
(CCD-TR570E)
(CCD-TR650E/TR750E)
(CCD-TR570E/TR650E/TR750E)
(CCD-TR530E/TR550E)
IC951
D/A CONVERTER
IC951 MB88344BPFV
REC LOW CONT
SYNC AGC
C COMB
YB
PAL JOG
C EMPH
CAR
BEV
SHARPNESS
W CLIP
PB Y
EMPH
REC Y
NC
VSS
VDD
1/2 SWP
VCC
1.5H DEV
1.5H IR (1.7H DEV)
MX REC/PB
MT FO
MT Q
MT 2CH
MT 1CH
SMEAR
2CH DUMP CONT
1CH DUMP CONT
ZOOMMIC CONT
ZOOMMIC LEVEL
SI
SCK
D/A CS
SO
GND
RF SWP
AUDIO FADER
REC C VR
RF CONT
HP LEVEL
L951 10μH 2520:NLC
C951 0.1
C952 10 6.3V TA:A
Q956 BUFFER
Q956 2SB1819
R961 560
Q951, 952 LIMITTER
L952 10μH 2520:NLC
Q951 2SB798
Q952 2SB1819
R954 3.3
R955 5600
R956 18k
R957 820
C953 47 6.3V
C955 0.01
Q958 MIX AMP
Q958 2SB1819
R962 22k
C959 0.1
R963 2200
R964 1200
R965 2200
R966 2700
R967 8.2k
R968 12k
09

'S (Hi 8 I/O, ELECTRIC VOLUME) SCHEMATIC DIAGRAM

• Refer to page 4–21 for Printed Wiring Board.

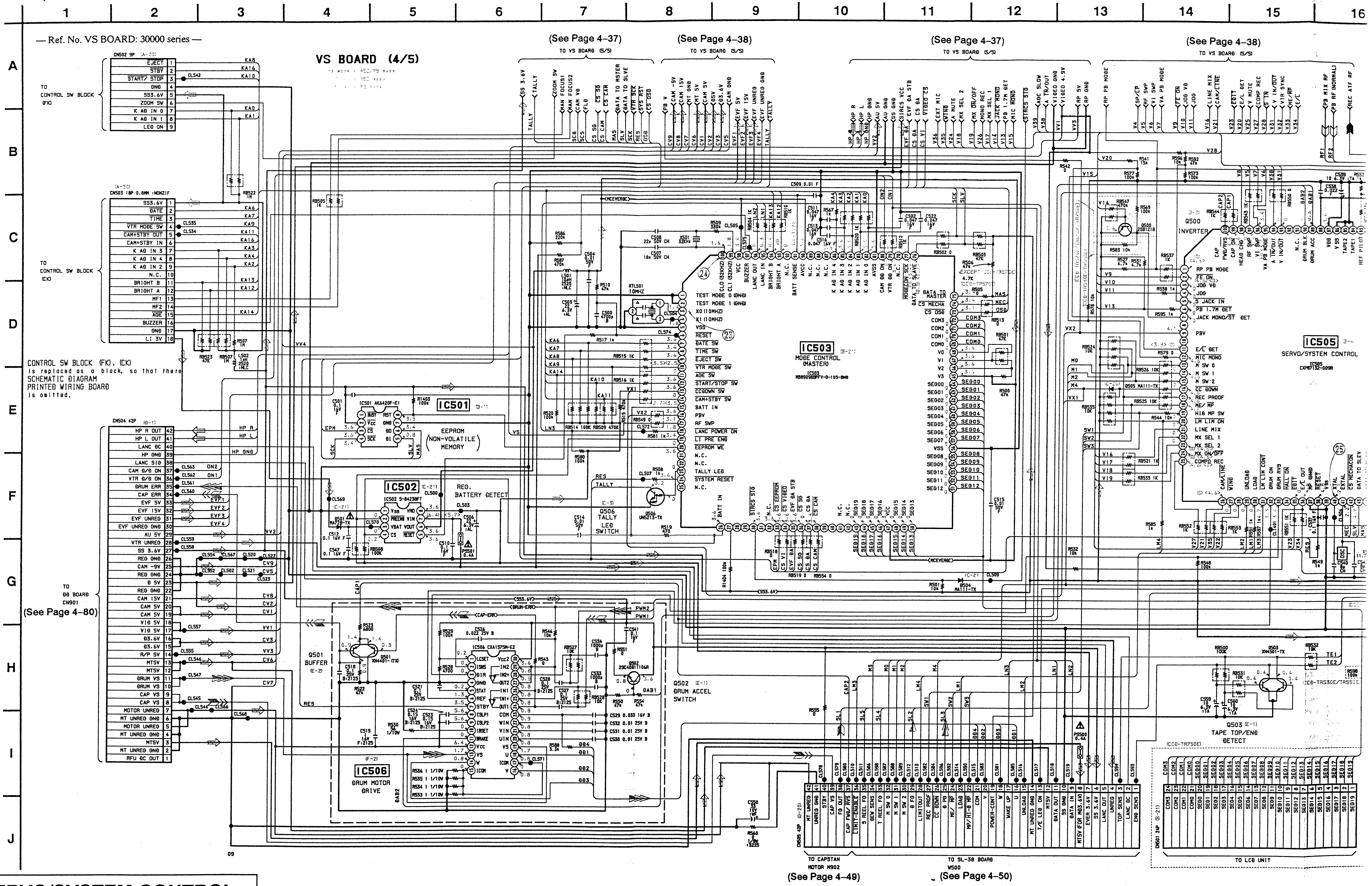
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

— Ref. No. VS BOARD: 30000 series —


VS BOARD (3/5)
IC251
SWITCH
CX1812Q
Q1258
BUFFER
2SB1819
Q1252
UN5213
INVERTER
D1252
MA142WK
D1251
MA142WK
Q1257
BUFFER
2SB1218
Q1253, 1254
TERMINATER
2SC4555
Q1259
DC AMP
XN4312
IC951
D/A CONVERTER
MB88346BPFV
Q956
BUFFER
2SB1819
Q951, 952
LIMITTER
Q958
MIX AMP
Q960
BUFFER
L951
10μH
2520:NLC
L952
1μH
2520:NLC
(CCD-TR570E)
(CCD-TR650E/TR750E)
(CCD-TR570E/TR650E/TR750E)
(CCD-TR530E/TR550E)
Y OUT VCC
SEL 1
EVF Y IN
P: SAVE
EE PB Y IN
VCC
CAM REC C
DOS VOB
C OUT VCC
C IN
SEL 2
S-C OUT
C MUTE
EE PB C OUT
V REG
C OUT GND
Y INV IN
S-Y OUT
Y OUT GND
CAM-C IN
Y/V SEL
S-C IN
GND
CAM-Y IN
CAM REC Y OUT
DOS VOW
EVF Y/V OUT
EVF VOW
EVF C OUT
EVF VOB
S-Y IN
INPUT SEL
EE PB C OUT
C MUTE
C SW
V IN/OUT
TO VS BOARD (5/5)
(See Page 4–39)
V IN/OUT
CAM REC Y
CAM/LINE
COMP REC
CAM REC C
S IN
DOS VOW
Y IN/OUT
DOS VOB
S-Y GND
EVF VOW
C IN/OUT
EVF VOB
S-C GND
CAM Y
PB C
V IN/OUT
CAM C
EVF C OUT
VIDEO GND
VIDEO 4.9V
EVF Y OUT
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FO
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
MT DASH CH
AUDIO FADER
SMEAR
SYNC AGC
C COMB
PAL JOG
CE CONT
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
1.5M IR
1.5M DEV
MAT ADJ
RFU DC OUT
RF SWP
EE PB Y
VTR SCK
CS DA
DATA TO SLVE
RP GND
REC LOW CONT
SYNC AGC
C COMB
YO
PAL JOG
C EMPH
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
REC Y
VSS
VDD
1/2 SWP
VCC
1.5M DEV
1.5M IR (1.7M DEV)
MX REC/PB
MT FO
MT Q
MT 2CH
MT 1CH
SMEAR
2CH DUMP CONT
1CH DUMP CONT
ZOOMMIC CONT
ZOOMMIC LEVEL
SI
SCK
D/A CS
SO
GND
RF SWP
AUDIO FADER
REC C VR
RF CONT
HP LEVEL

VS (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

• Refer to page 4-21 for Printed Wiring Board.


— Ref. No. VS BOARD: 30000 series —
VS BOARD (4/5)
(See Page 4-37)
TO VS BOARD (5/5)
(See Page 4-38)
TO VS BOARD (5/5)
(See Page 4-37)
TO VS BOARD (5/5)
(See Page 4-38)
TO VS BOARD (5/5)
CN502 9P
TO CONTROL SW BLOCK (FK)
CN503 18P 0.8MM :NONZIF
TO CONTROL SW BLOCK (CK)
CONTROL SW BLOCK (FK), (CK) is replaced as a block, so that there SCHEMATIC DIAGRAM PRINTED WIRING BOARD is omitted.
CN504 42P
TO DD BOARD CN901
(See Page 4-80)
IC501
EEPROM (NON-VOLATILE MEMORY)
IC502
REG. BATTERY DETECT
IC503
MODE CONTROL (MASTER)
IC505
SERVO/SYSTEM CONTROL
IC506
DRUM MOTOR DRIVE
Q501 BUFFER
Q502 DRUM ACCEL SWITCH
Q506 TALLY LED SWITCH
Q500 INVERTER
Q503 TAPE TOP/END DETECT
CN505 42P
TO CAPSTAN MOTOR M902
(See Page 4-49)
TO SL-38 BOARD W500
(See Page 4-50)
CN501 24P
TO LCD UNIT
1
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3
4
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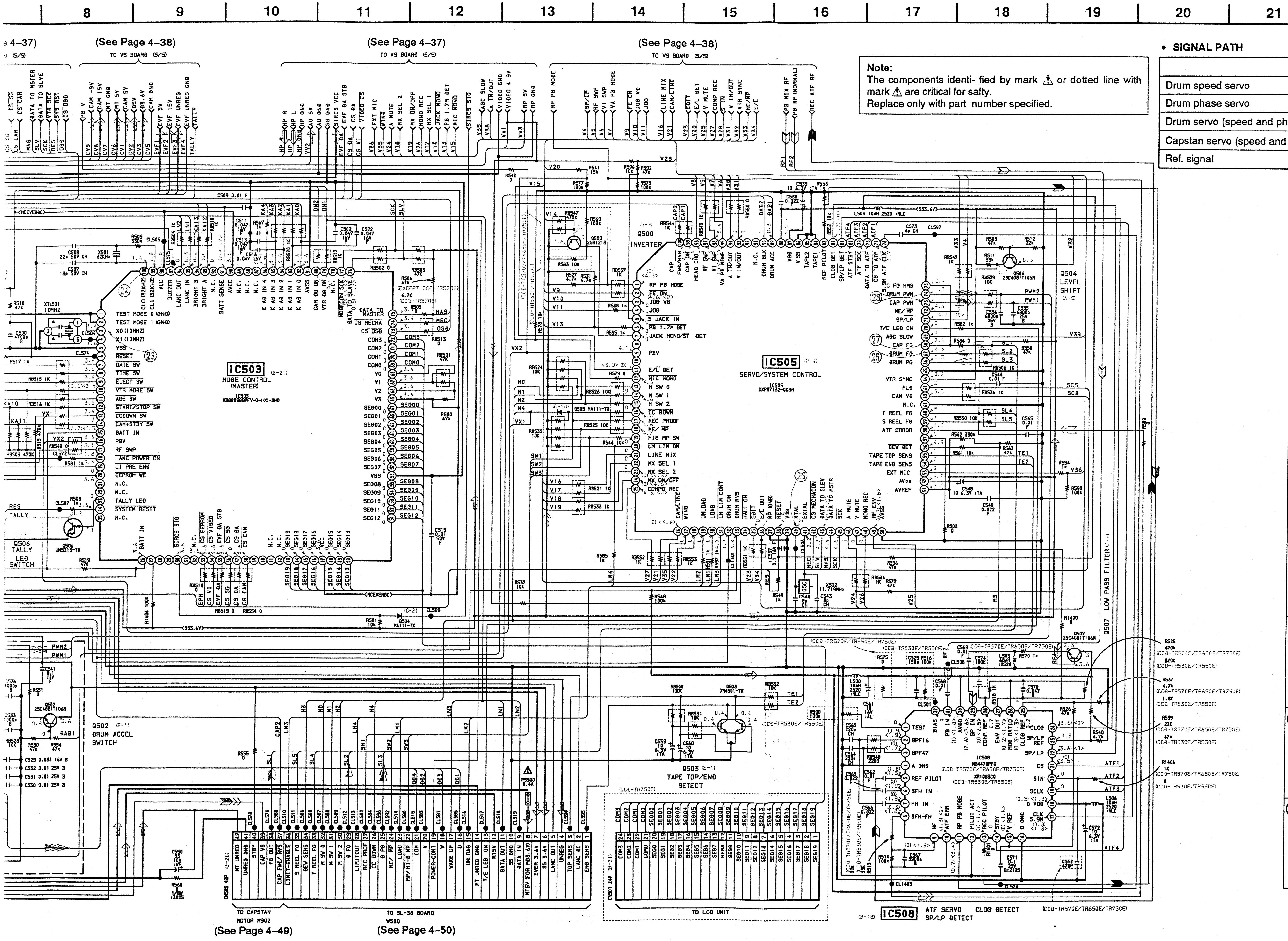
A
B
C
D
E
F
G
H
I
J


(See Page 4-37)
(See Page 4-38)
TO VS BOARD (5/5)
IC503
MODE CONTROL (MASTER)
MB89098BPFV-G-105-BND
IC505
SERVO/SYSTEM CONTROL
CXP87132-009R
IC508
ATF SERVO CLOG DETECT SP/LP DETECT
Q500 INVERTER
Q502 DRUM ACCEL SWITCH
Q503 TAPE TOP/END DETECT
Q504 LEVEL SHIFT
Q506 TALLY LED SWITCH
Q507 LOW PASS FILTER
CN505 42P
CN501 24P
TO CAPSTAN MOTOR M902
(See Page 4-49)
TO SL-38 BOARD W500
(See Page 4-50)
TO LCD UNIT

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

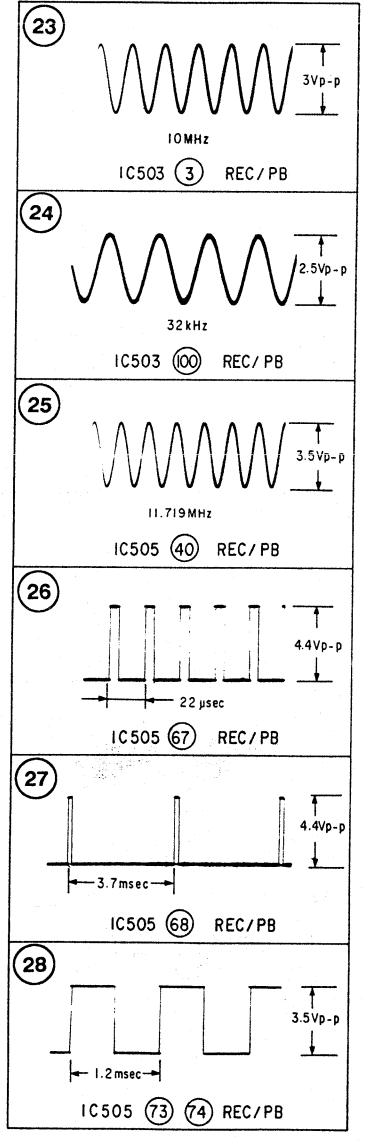
- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		➢	
Drum phase servo		➢	
Drum servo (speed and phase)		➢	
Capstan servo (speed and phase)		➢	
Ref. signal			

- **SIGNAL PATH**

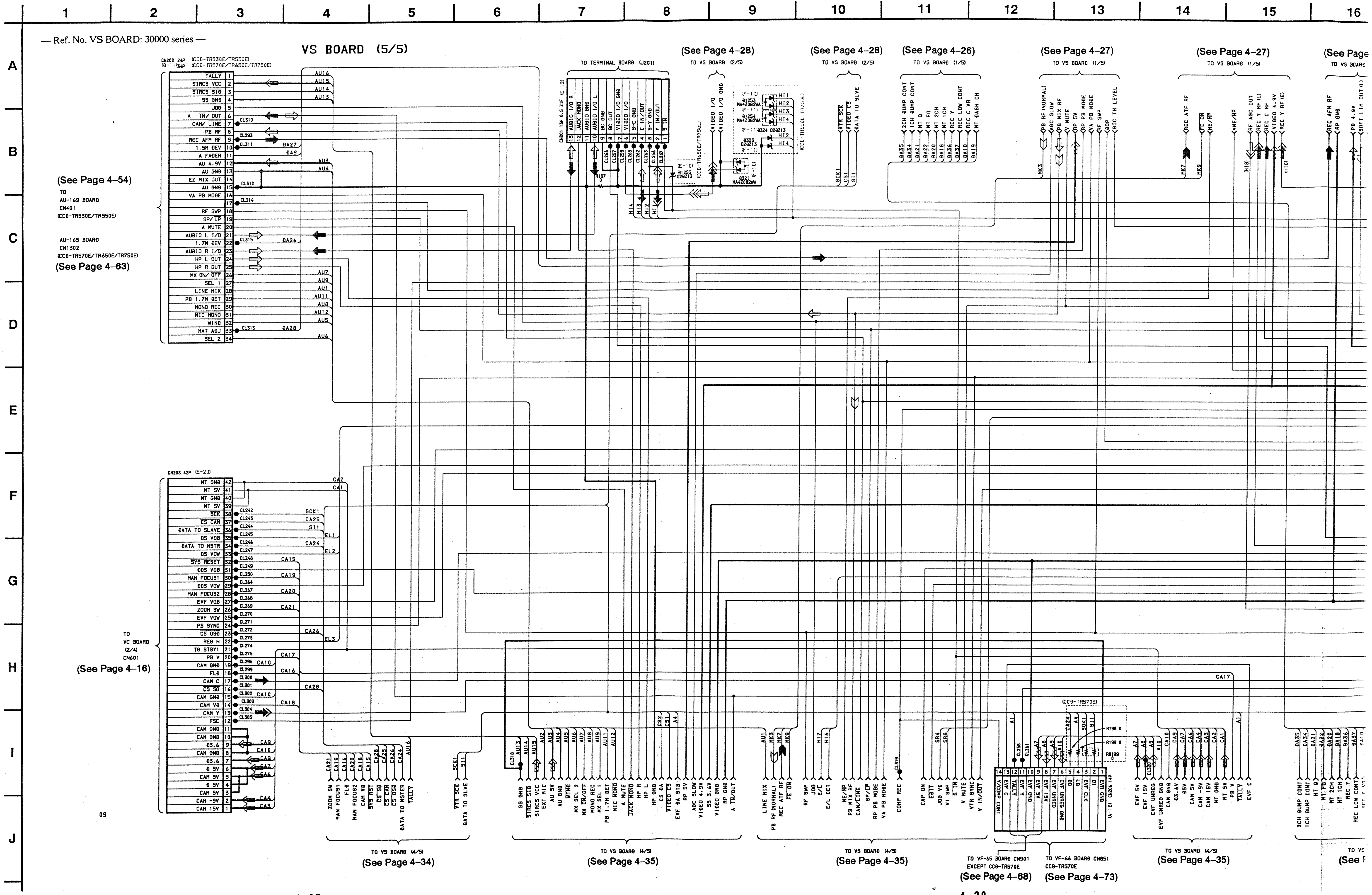
	AUDIO SIGNAL
REC	
PB	⇨

VS BOARD (4/5)



VS (SIGNAL I/O) SCHEMATIC DIAGRAM

- Refer to page 4-21 for Printed Wiring Board.



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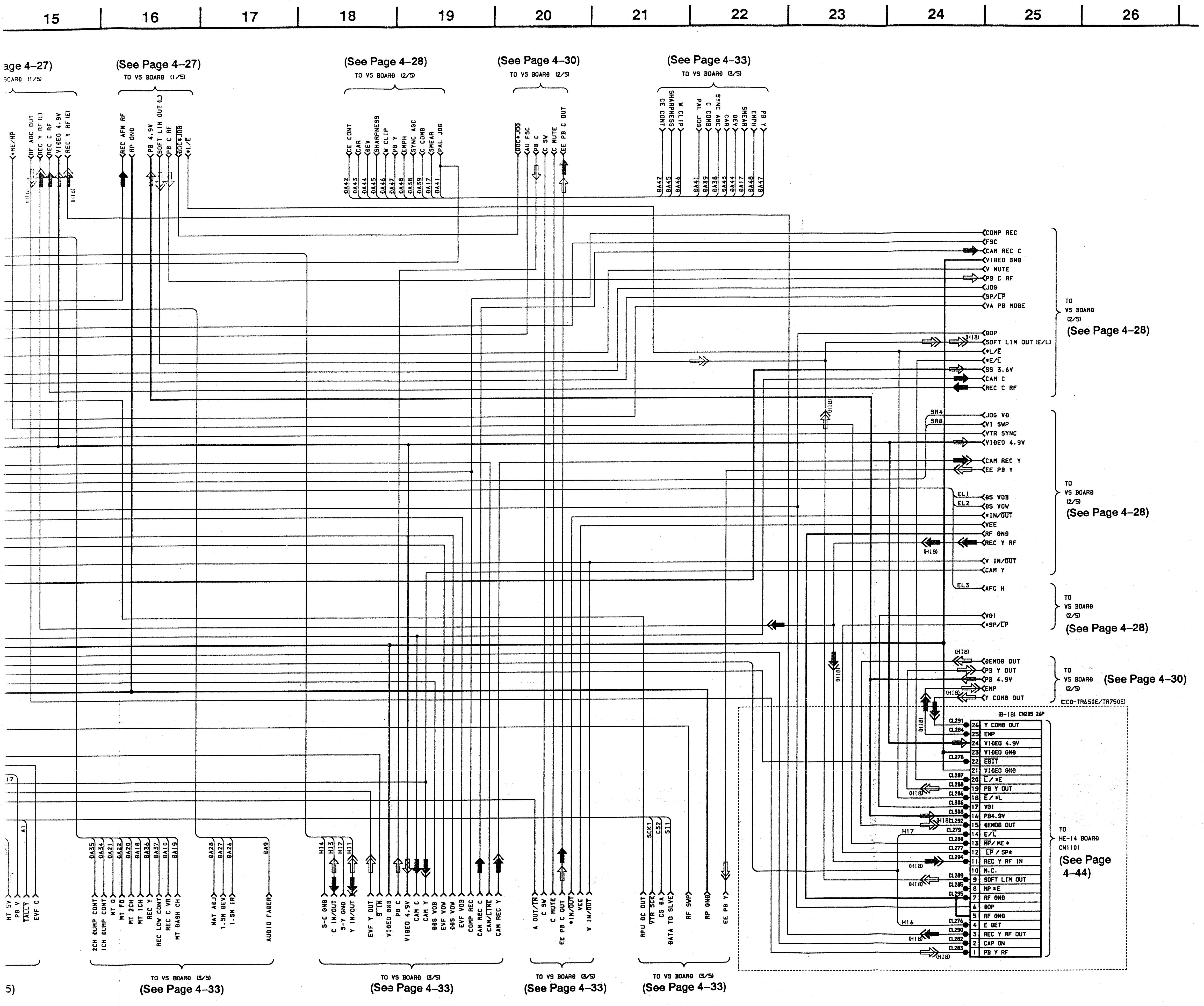
— Ref. No. VS BOARD: 30000 series —
VS BOARD (5/5)
CN202 24P (CCD-TR530E/TR550E)
(B-11)34P (CCD-TR570E/TR650E/TR750E)
TALLY
SIRCS VCC
SIRCS SIG
SS GND
JOG
A IN/OUT
CAM/LINE
PB RF
REC AFM RF
1.5M DEV
A FADER
AU 4.9V
AU GND
EZ MIX OUT
AU GND
VA PB MODE
RF SWP
SP/LP
A MUTE
AUDIO L I/O
1.7M DEV
AUDIO R I/O
HP L OUT
HP R OUT
MX ON/OFF
SEL 1
LINE MIX
PB 1.7M DET
MONO REC
MIC MONO
WIND
MAT ADJ
SEL 2
(See Page 4-54)
TO
AU-169 BOARD
CN401
(CCD-TR530E/TR550E)
AU-165 BOARD
CN1302
(CCD-TR570E/TR650E/TR750E)
(See Page 4-63)
CN203 42P (E-20)
MT GND
MT 5V
MT GND
MT 5V
SCK
CS CAM
DATA TO SLAVE
DS VDB
DATA TO MSTR
DS VDW
SYS RESET
DDS VDB
MAN FOCUS1
DDS VDW
MAN FOCUS2
EVF VDB
ZOOM SW
EVF VDW
PB SYNC
CS OSD
REG H
TO STBY1
PB V
CAM GND
FLD
CAM C
CS SG
CAM GND
CAM VD
CAM Y
FSC
CAM GND
CAM GND
D3.6
CAM GND
D3.6
D 5V
CAM 5V
D 5V
CAM 5V
CAM -9V
CAM 15V
TO
VC BOARD
(2/4)
CN601
(See Page 4-16)
09
(See Page 4-28)
TO TERMINAL BOARD (J201)
CN201 13P 0.5 ZIF (E-12)
AUDIO I/O R
JACK MONO
AUDIO GND
AUDIO I/O L
DC GND
DC OUT
VIDEO I/O GND
VIDEO I/O
S-C GND
C IN/OUT
S-Y GND
Y IN/OUT
S IN
(See Page 4-28)
TO VS BOARD (2/5)
VIDEO I/O
VIDEO I/O GND
(See Page 4-28)
TO VS BOARD (2/5)
VTR SCK
VIDEO CS
DATA TO SLVE
(See Page 4-26)
TO VS BOARD (1/5)
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FD
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
MT DASH CH
(See Page 4-27)
TO VS BOARD (1/5)
PB RF (NORMAL)
AGC SLOW
PB MIX RF
Y MUTE
RP 5V
RP PB MODE
VA PB MODE
RF SWP
DOP
DOC TH LEVEL
(See Page 4-27)
TO VS BOARD (1/5)
REC ATF RF
FE ON
ME/MP
RF AGC OUT
REC Y RF (L)
REC C RF
VIDEO 4.9V
REC Y RF (E)
(See Page
TO VS BOARD
REC AFM RF
RP GND
PB 4.9V
SOFT I.M OUT (L)
ZOOM 5V
MAN FOCUS1
FLD
MAN FOCUS2
CAM VD
SYS RST
CS SG
CS CAM
CS OSD
DATA TO MSTER
TALLY
TO VS BOARD (4/5)
(See Page 4-34)
VTR SCK
DATA TO SLVE
SS GND
SIRCS SIG
SIRCS VCC
EXT MIC
AU 5V
AU GND
WIND
MX SEL 2
MX ON/OFF
MONO REC
MX SEL 1
PB 1.7M DET
MIC MONO
A MUTE
JACK MONO
HP R
HP L
HP GND
CS 5V
VIDEO CS
EVF DA STB
RP 5V
AGC SLOW
VIDEO 4.9V
SS 3.6V
VIDEO GND
RP GND
A TR/OUT
TO VS BOARD (4/5)
(See Page 4-35)
LINE MIX
PB RF (NORMAL)
REC ATF RF
FE ON
RF SWP
JOG
E/C
E/L DET
ME/MP
PB MIX RF
CAM/LTNE
SP/LP
RP PB MODE
VA PB MODE
COMP REC
CAP ON
EDIT
JOG VD
VI SWP
S TR
V MUTE
VTR SYNC
V IN/OUT
TO VS BOARD (4/5)
(See Page 4-35)
(CCD-TR570E)
CN206 14P (A-18)
Y/COMP CONT
EVF C
TALLY
EVF Y
EVF GND
EVF 5V
EVF 15V
EVF UNREG
EVF UNREG GND
BD
LD
EVF CLK
BI
EVR GND
TO VF-65 BOARD CN901
EXCEPT CCD-TR570E
(See Page 4-68)
TO VF-66 BOARD CN851
CCD-TR570E
(See Page 4-73)
EVF 5V
EVF 15V
EVF UNREG
EVF UNREG GND
CAM GND
D3.6V
D5V
CAM 5V
CAM -9V
CAM 15V
MT GND
MT 5V
PB Y
TALLY
EVF C
TO VS BOARD (4/5)
(See Page 4-35)
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FD
MT 2CH
MT 1CH
REC Y
REC LOW CONT
TO VS
(See P


15
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age 4–27)
BOARD (1/5)
*ME/MP
RF AGC OUT
REC Y RF (L)
REC C RF
VIDEO 4.9V
REC Y RF (E)
(See Page 4–27)
TO VS BOARD (1/5)
REC AFM RF
RP GND
PB 4.9V
SOFT LIM OUT (L)
PB C RF
DOC*JOG
*L/E
(See Page 4–28)
TO VS BOARD (2/5)
CE CONT
CAR
DEV
SHARPNESS
W CLIP
PB Y
EMPH
SYNC AGC
C COMB
SMEAR
PAL JOG
DA42
DA43
DA44
DA45
DA46
DA47
DA48
DA38
DA39
DA17
DA41
(See Page 4–30)
TO VS BOARD (2/5)
DOC*JOG
AU FSC
PB C
C SW
C MUTE
EE PB C OUT
(See Page 4–33)
TO VS BOARD (3/5)
CE CONT
SHARPNESS
W CLIP
PAL JOG
C COMB
SYNC AGC
CAR
DEV
SMEAR
EMPH
PB Y
COMP REC
FSC
CAM REC C
VIDEO GND
V MUTE
PB C RF
JOG
SP/LP
VA PB MODE
DOP
SOFT LIM OUT (E/L)
*L/E
*E/L
SS 3.6V
CAM C
REC C RF
TO
VS BOARD
(2/5)
(See Page 4–28)
SR4
SR8
JOG VD
VI SWP
VTR SYNC
VIDEO 4.9V
CAM REC Y
EE PB Y
EL1
EL2
DS VOB
DS VOW
*IN/OUT
VEE
RF GND
REC Y RF
V IN/OUT
CAM Y
EL3
AFC H
TO
VS BOARD
(2/5)
(See Page 4–28)
VG1
*SP/LP
TO
VS BOARD
(2/5)
(See Page 4–28)
(H18)
DEMOD OUT
PB Y OUT
PB 4.9V
EMP
Y COMB OUT
TO
VS BOARD
(2/5)
(See Page 4–30)
(CCD-TR650E/TR750E)
(D-18) CN205 26P
CL291 26 Y COMB OUT
CL284 25 EMP
24 VIDEO 4.9V
23 VIDEO GND
CL278 22 EDIT
21 VIDEO GND
CL287 20 L/*E
CL288 19 PB Y OUT
CL286 18 E/*L
CL306 17 VG1
CL308 16 PB4.9V
CL292 15 DEMOD OUT
CL279 14 E/L
CL280 13 MP/ME*
CL277 12 LP/SP*
CL294 11 REC Y RF IN
10 N.C.
CL289 9 SOFT LIM OUT
CL285 8 MP*E
CL295 7 RF GND
6 DOP
5 RF GND
CL276 4 E DET
CL290 3 REC Y RF OUT
CL282 2 CAP ON
CL283 1 PB Y RF
H17
H16
TO
HE-14 BOARD
CN1101
(See Page 4–44)
17
A1
MT 5V
PB V
TALLY
EVF C
DA35
DA34
DA21
DA22
DA20
DA18
DA36
DA37
DA10
DA19
2CH DUMP CONT
1CH DUMP CONT
MT Q
MT FO
MT 2CH
MT 1CH
REC Y
REC LOW CONT
REC C VR
MT DASH CH
DA28
DA27
DA26
MAT ADJ
1.5M DEV
1.5M IR
DA9
AUDIO FADER
TO VS BOARD (3/5)
(See Page 4–33)
H14
H13
H12
H11
S-C GND
C IN/OUT
S-Y GND
Y IN/OUT
EVF Y OUT
S IN
VIDEO GND
PB C
VIDEO 4.9V
CAM C
CAM Y
DDS VOB
EVF VOW
DDS VOW
EVF VOB
COMP REC
CAM REC C
CAM/LINE
CAM REC Y
TO VS BOARD (3/5)
(See Page 4–33)
A OUT/IN
C SW
C MUTE
EE PB C OUT
*IN/OUT
VEE
V IN/OUT
TO VS BOARD (3/5)
(See Page 4–33)
SCK1
CS2
SI1
RFU DC OUT
VTR SCK
CS DA
DATA TO SLVE
RF SWP
RP GND
EE PB Y
TO VS BOARD (3/5)
(See Page 4–33)
5)

- SIGNAL PATH

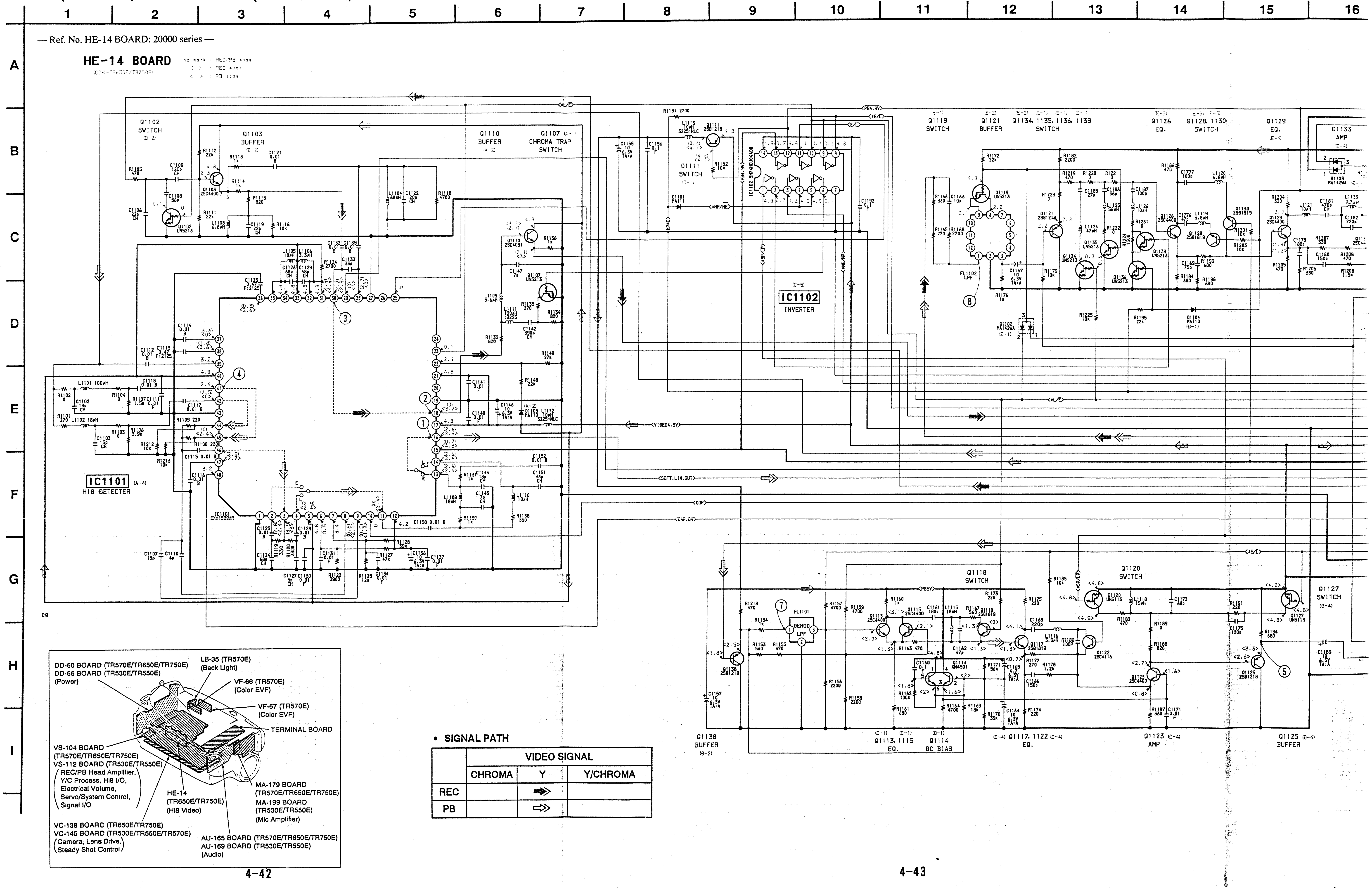
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛		➡
PB	⇨	⇛	⇛	⇨

- SIGNAL PATH

	REC	REC/PB	PB
Ref. signal	➡		⇨

HE-14 (Hi 8 VIDEO) SCHEMATIC DIAGRAM (TR650E/TR750E)

— Ref. No. HE-14 BOARD: 20000 series —



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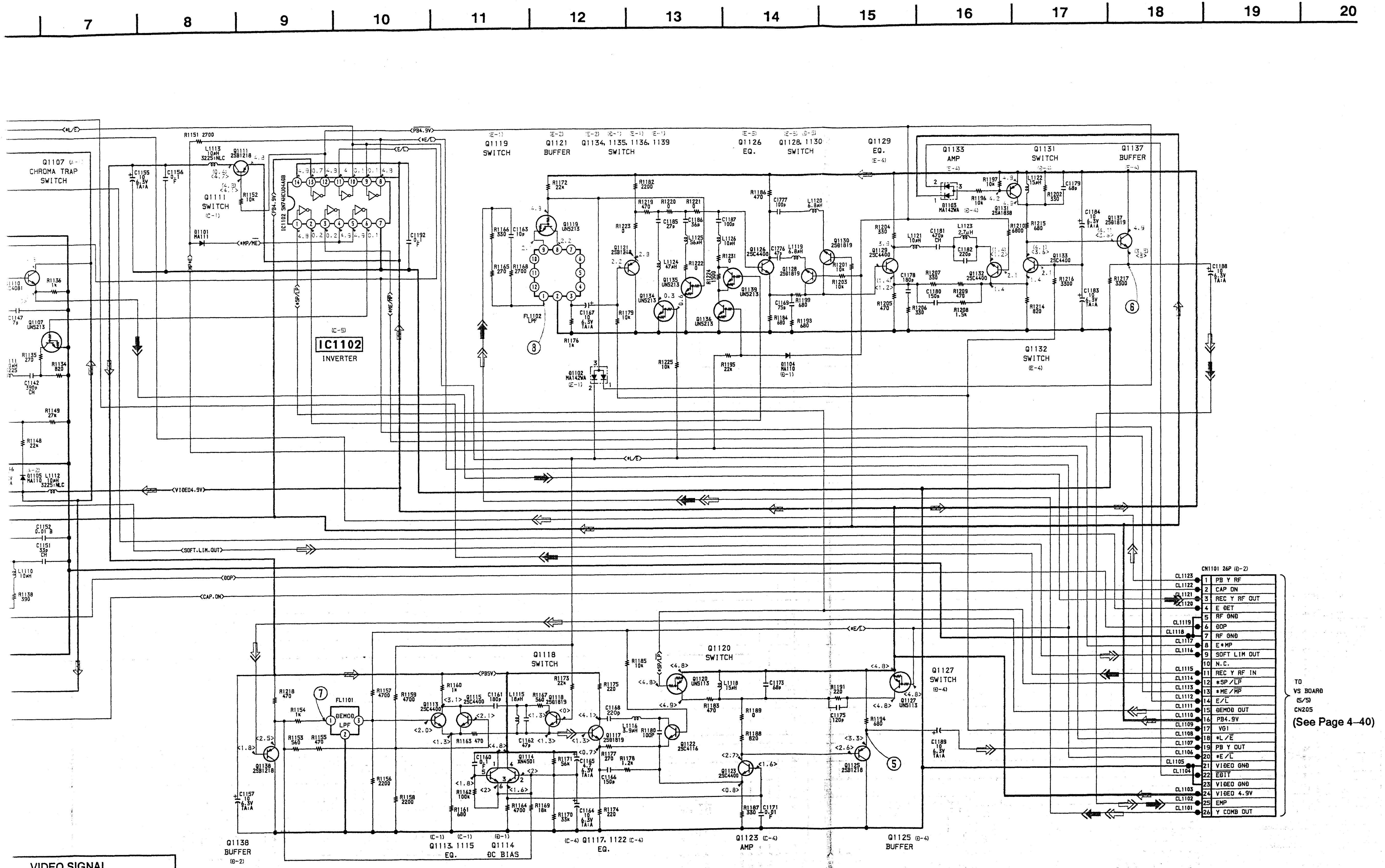
G
H
I
HE-14 BOARD
(CCD-TR650E/TR750E)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
Q1102 SWITCH
Q1103 BUFFER
Q1110 BUFFER
Q1107 CHROMA TRAP SWITCH
Q1111 SWITCH
IC1102 SN74HCU04ADB
IC1102 INVERTER
IC1101 HI8 DETECTER
IC1101 CXA1509AR
Q1119 SWITCH
Q1121 BUFFER
Q1134, 1135, 1136, 1139 SWITCH
Q1126 EQ.
Q1128, 1130 SWITCH
Q1129 EQ.
Q1133 AMP
FL1102 LPF
FL1101 DEMOD LPF
Q1118 SWITCH
Q1120 SWITCH
Q1127 SWITCH
Q1138 BUFFER
Q1113, 1115 EQ.
Q1114 DC BIAS
Q1117, 1122 EQ.
Q1123 AMP
Q1125 BUFFER
<PB4.9V>
<E/E>
<L/E>
<MP/ME>
<SP/LP>
<VIDEO4.9V>
<SOFT.LIM.OUT>
<DOP>
<CAP.ON>
<PBSV>
09
DD-60 BOARD (TR570E/TR650E/TR750E)
DD-66 BOARD (TR530E/TR550E)
(Power)
LB-35 (TR570E)
(Back Light)
VF-66 (TR570E)
(Color EVF)
VF-67 (TR570E)
(Color EVF)
TERMINAL BOARD
VS-104 BOARD
(TR570E/TR650E/TR750E)
VS-112 BOARD (TR530E/TR550E)
(REC/PB Head Amplifier,
Y/C Process, Hi8 I/O,
Electrical Volume,
Servo/System Control,
Signal I/O)
HE-14
(TR650E/TR750E)
(Hi8 Video)
MA-179 BOARD
(TR570E/TR650E/TR750E)
MA-199 BOARD
(TR530E/TR550E)
(Mic Amplifier)
VC-138 BOARD (TR650E/TR750E)
VC-145 BOARD (TR530E/TR550E/TR570E)
(Camera, Lens Drive,
Steady Shot Control)
AU-165 BOARD (TR570E/TR650E/TR750E)
AU-169 BOARD (TR530E/TR550E)
(Audio)

• **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	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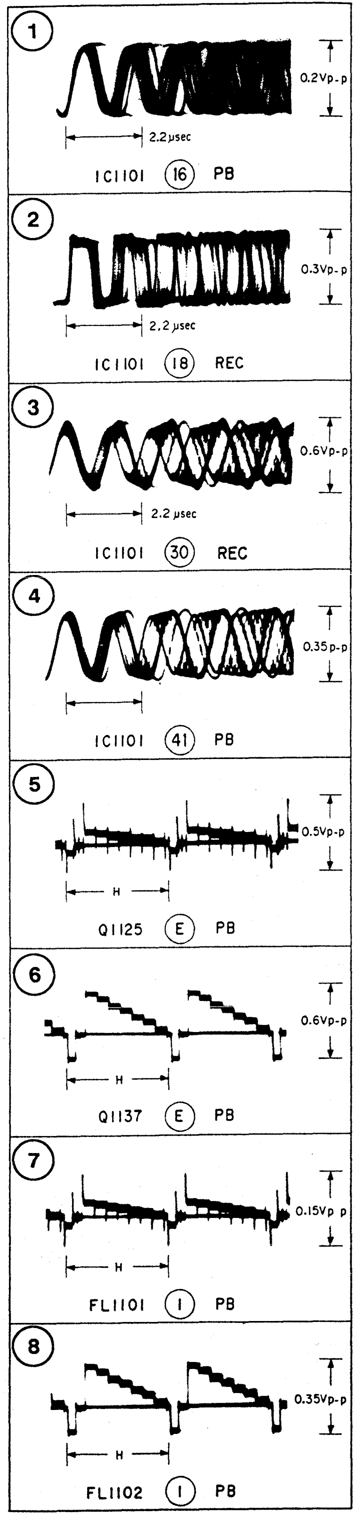
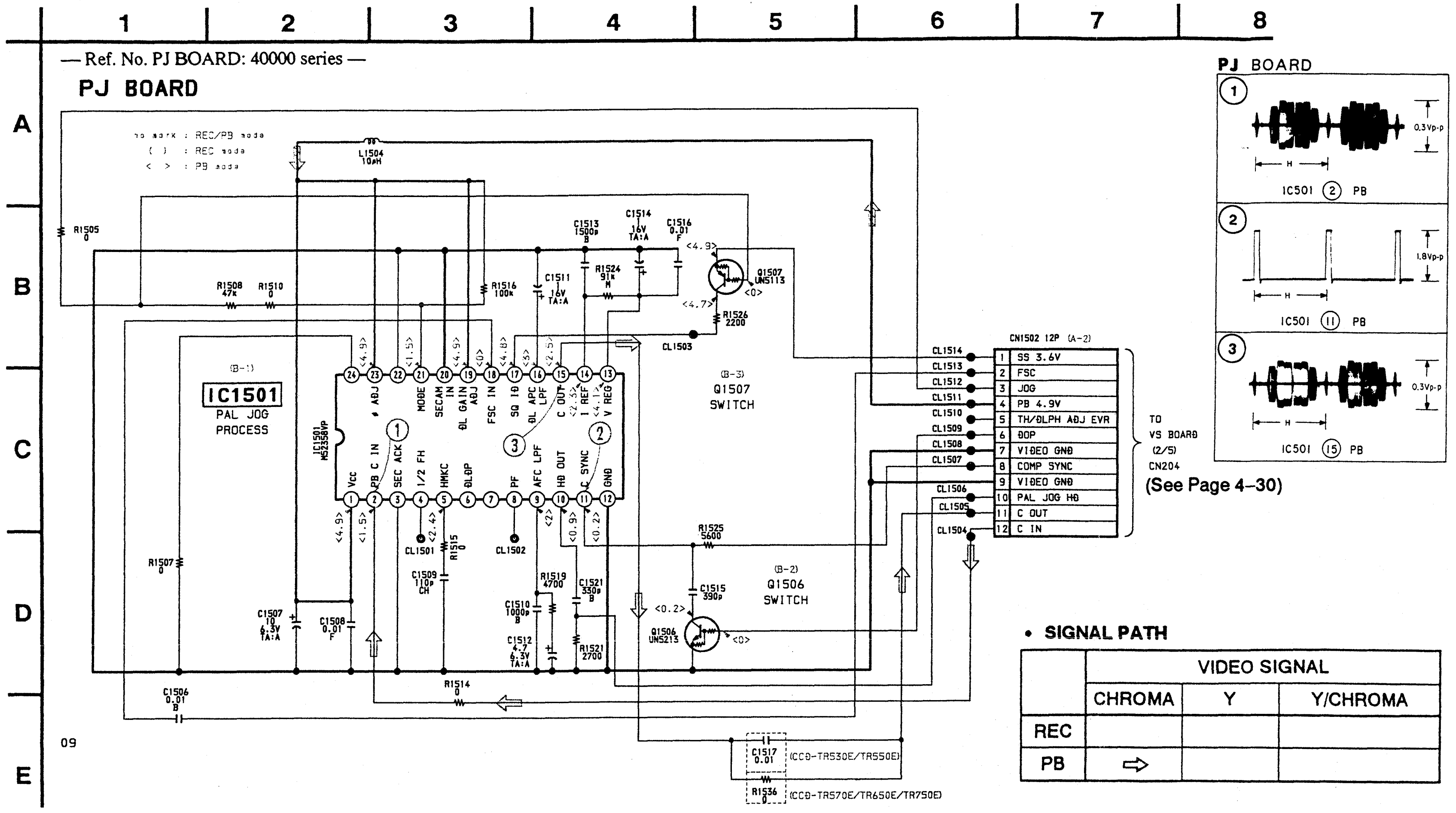
Q1107 CHROMA TRAP SWITCH
Q1111 SWITCH
IC1102 INVERTER
Q1119 SWITCH
Q1121 BUFFER
Q1134, 1135, 1136, 1139 SWITCH
Q1126 EQ.
Q1128, 1130 SWITCH
Q1129 EQ.
Q1133 AMP
Q1131 SWITCH
Q1137 BUFFER
Q1132 SWITCH
FL1102 LPF
FL1101 DEMOD LPF
Q1118 SWITCH
Q1120 SWITCH
Q1127 SWITCH
Q1138 BUFFER
Q1113, 1115 EQ.
Q1114 DC BIAS
Q1117, 1122 EQ.
Q1123 AMP
Q1125 BUFFER
<PB4.9V>
<VIDEO4.9V>
<SOFT.LIM.OUT>
<DOP>
<CAP.ON>
<PB5V>
<E/L>
CN1101 26P (D-2)
CL1123 1 PB Y RF
CL1122 2 CAP ON
CL1121 3 REC Y RF OUT
CL1120 4 E DET
5 RF GND
CL1119 6 DOP
CL1118 7 RF GND
CL1117 8 E*MP
CL1116 9 SOFT LIM OUT
10 N.C.
CL1115 11 REC Y RF IN
CL1114 12 *SP/LP
CL1113 13 *ME/MP
CL1112 14 E/L
CL1111 15 DEMOD OUT
CL1110 16 PB4.9V
CL1109 17 VG1
CL1108 18 *L/E
CL1107 19 PB Y OUT
CL1106 20 *E/L
CL1105 21 VIDEO GND
CL1104 22 EDIT
23 VIDEO GND
CL1103 24 VIDEO 4.9V
CL1102 25 EMP
CL1101 26 Y COMB OUT
TO VS BOARD (5/5) CN205
(See Page 4–40)

VIDEO SIGNAL	
Y	Y/CHROMA
➡	
⇨	

HE-14 BOARD



PJ (PAL JOG PROCESS) SCHEMATIC DIAGRAM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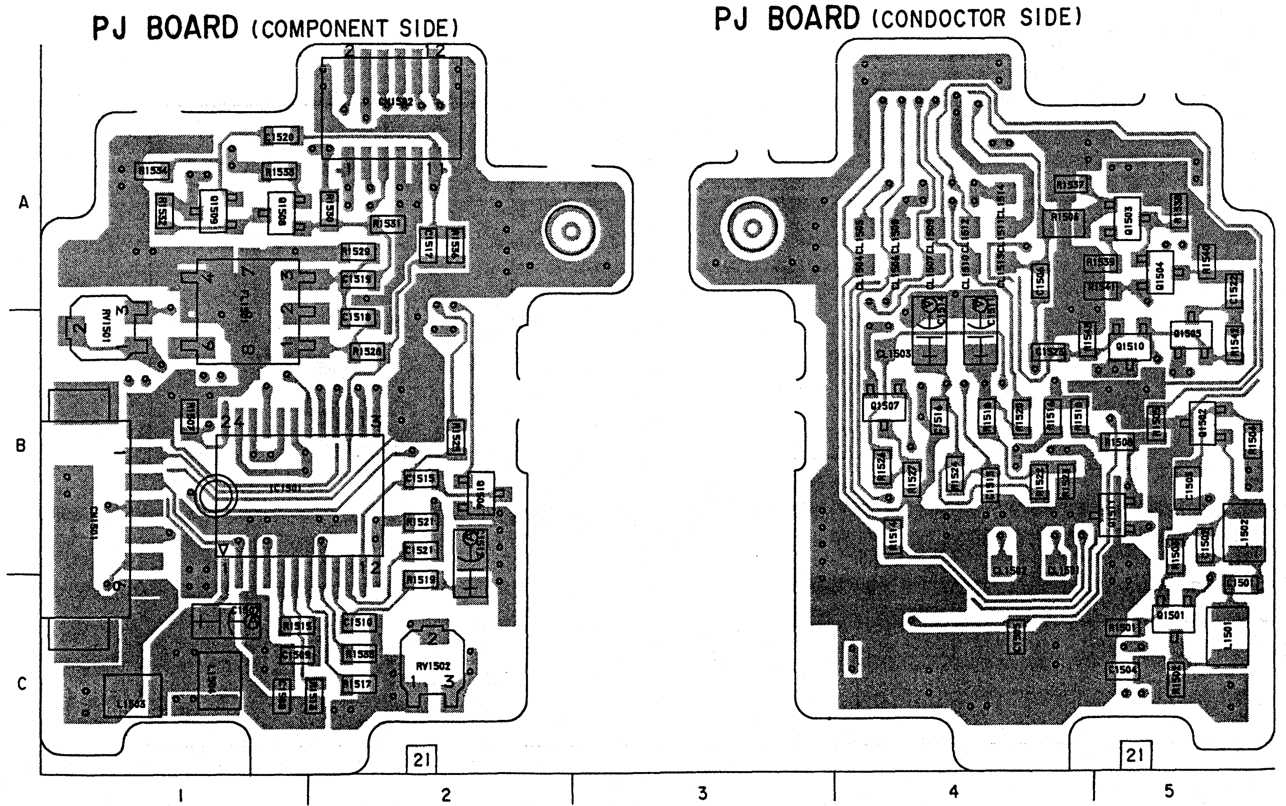
8
A
B
C
D
E
— Ref. No. PJ BOARD: 40000 series —
PJ BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
L1504 10μH
R1505 0
R1508 47k
R1510 0
R1516 100k
C1511 16V TA:A
C1513 1500p B
C1514 16V TA:A
C1516 0.01 F
R1524 91k M
Q1507 UN5113
R1526 2200
CL1503
(B-1)
IC1501
PAL JOG PROCESS
IC1501 M52358VP
Vcc
PB C IN
SEC ACK
1/2 FH
HMKC
ΘLΘP
PF
AFC LPF
HD OUT
C SYNC
GND
φ ADJ
MODE
SECAM IN
ΘL GAIN ADJ
FSC IN
SQ IΘ
ΘL APC LPF
C OUT
1 REF
V REG
(B-3)
Q1507
SWITCH
(B-2)
Q1506
SWITCH
Q1506 UN5213
CL1501
CL1502
R1515 0
C1509 110p CH
R1519 4700
C1521 330p B
C1510 1000p B
C1512 4.7 6.3V TA:A
R1521 2700
R1525 5600
C1515 390p
R1507 0
C1507 10 6.3V TA:A
C1508 0.01 F
C1506 0.01 B
R1514 0
C1517 0.01 (CCD-TR530E/TR550E)
R1536 (CCD-TR570E/TR650E/TR750E)
09
CN1502 12P (A-2)
CL1514
CL1513
CL1512
CL1511
CL1510
CL1509
CL1508
CL1507
CL1506
CL1505
CL1504
1 SS 3.6V
2 FSC
3 JOG
4 PB 4.9V
5 TH/ΘLPH AΘJ EVR
6 ΘOP
7 VIΘEO GNΘ
8 COMP SYNC
9 VIΘEO GNΘ
10 PAL JOG HΘ
11 C OUT
12 C IN
TO VS BOARD (2/5) CN204
(See Page 4-30)
PJ BOARD
①
IC501 ② PB
0.3Vp-p
②
IC501 ⑪ PB
1.8Vp-p
③
IC501 ⑮ PB
0.3Vp-p
H

- **SIGNAL PATH**

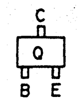
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB	⇨		

PJ (PAL JOG PROCESS) PRINTED WIRING BOARD

— Ref. No. PJ BOARD: 40000 series —

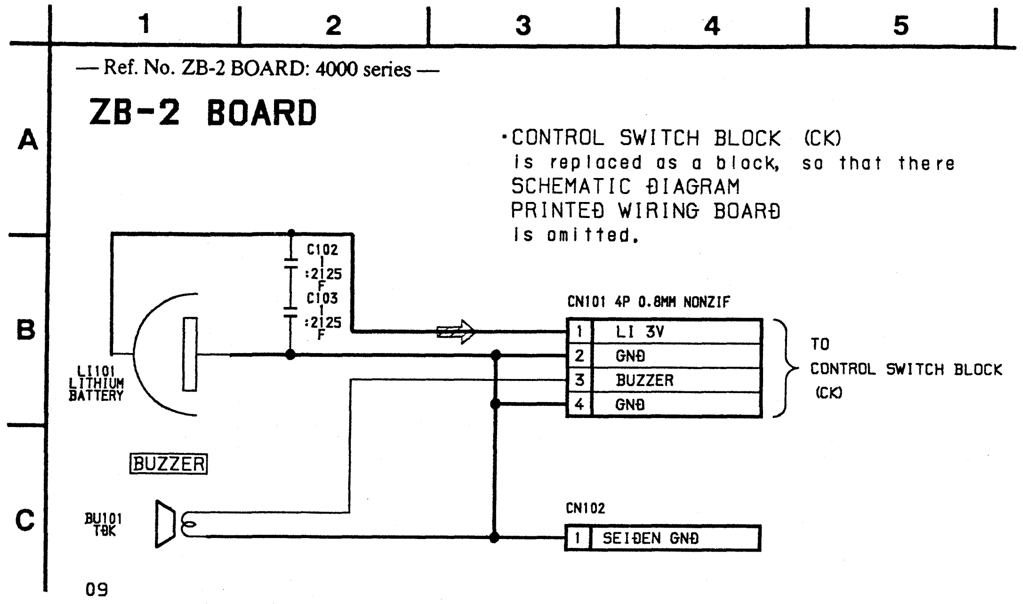

PJ BOARD (COMPONENT SIDE)
PJ BOARD (CONDOCTOR SIDE)
A
B
C
1
2
3
4
5
IC1501
RV1501
RV1502
Q1506
Q1507
21

- **For printed wiring boards.**
- PJ board is a four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- Chip transistor



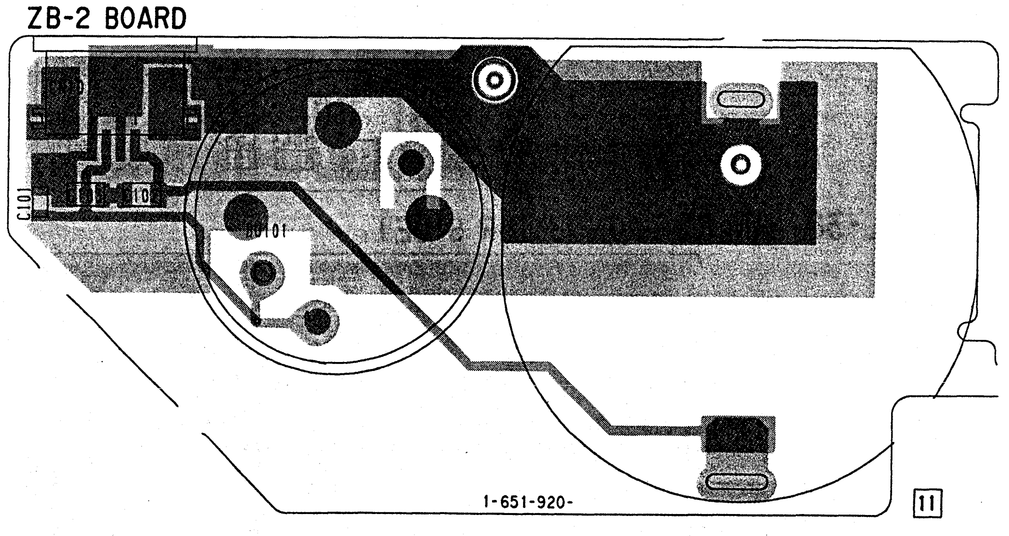
TR570E/TR650E/TR750E	**PJ-61**	**1-651-918-21**
TR530E/TR550E	**PJ-64**	**1-652-139-21**

ZB-2 (BUZZER/LITHIUM BATTERY) SCHEMATIC DIAGRAM

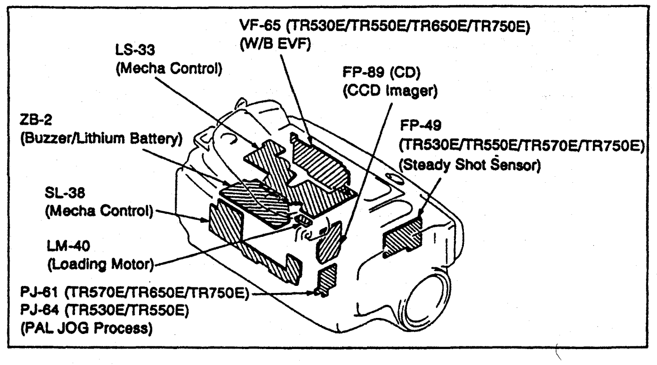

1
2
3
4
5
A
B
C
— Ref. No. ZB-2 BOARD: 4000 series —
ZB-2 BOARD
·CONTROL SWITCH BLOCK (CK) is replaced as a block, so that there SCHEMATIC ΘIAGRAM PRINTEΘ WIRING BOARΘ is omitted.
C102 :2125 F
C103 :2125 F
LI101 LITHIUM BATTERY
CN101 4P 0.8MM NONZIF
1 LI 3V
2 GNΘ
3 BUZZER
4 GNΘ
TO CONTROL SWITCH BLOCK (CK)
BUZZER
BU101 TDK
CN102
1 SEIΘEN GNΘ
09

ZB-2 (BUZZER/LITHIUM BATTERY) PRINTED WIRING BOARD

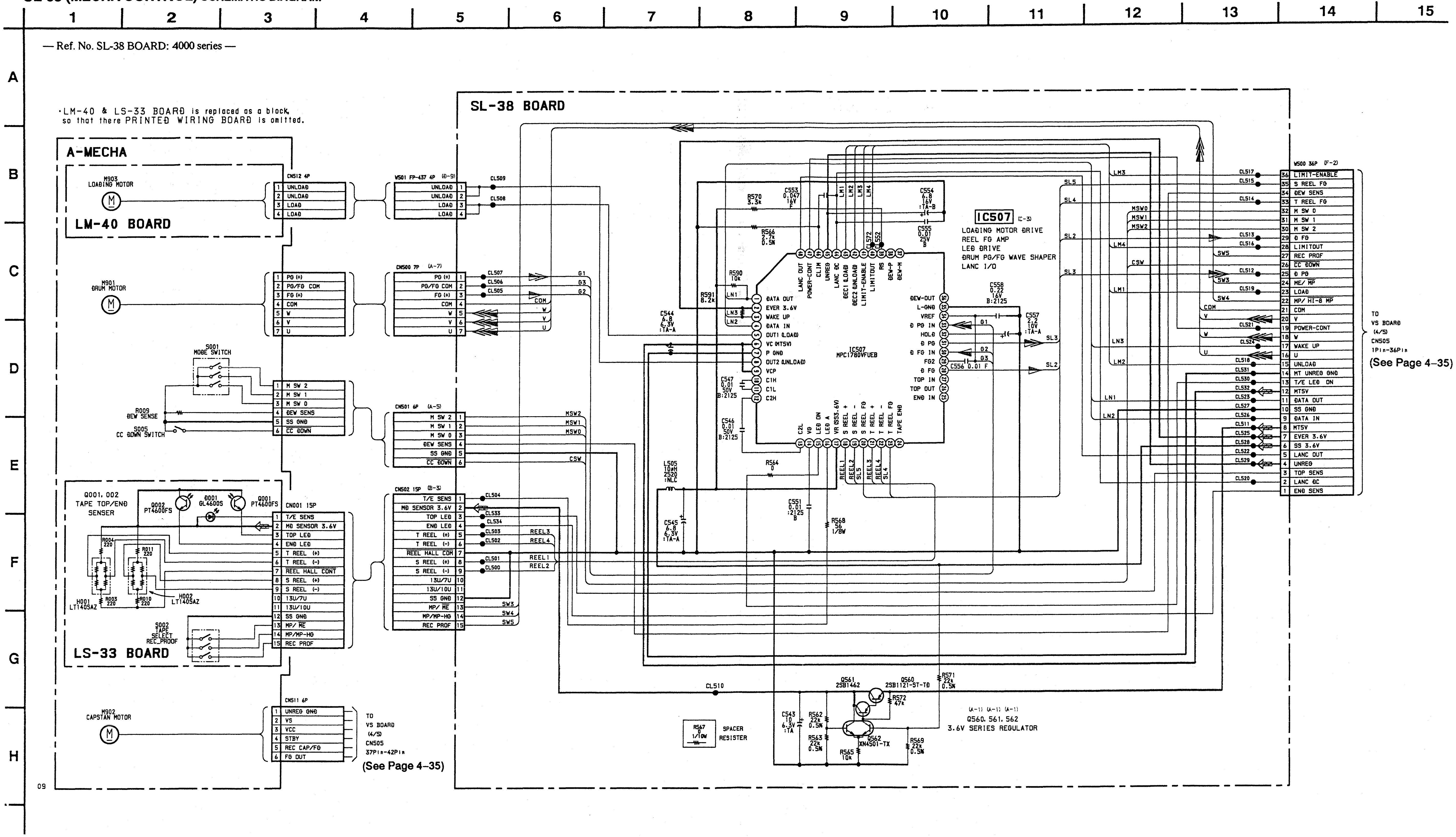
— Ref. No. ZB-2 BOARD: 4000 series —


ZB-2 BOARD
C101
BU101
1-651-920-
11

- **For printed wiring board of ZB-2 board.**
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.


VF-65 (TR530E/TR550E/TR650E/TR750E) (W/B EVF)
LS-33 (Mecha Control)
FP-89 (CD) (CCD Imager)
ZB-2 (Buzzer/Lithium Battery)
FP-49 (TR530E/TR550E/TR570E/TR750E) (Steady Shot Sensor)
SL-38 (Mecha Control)
LM-40 (Loading Motor)
PJ-61 (TR570E/TR650E/TR750E)
PJ-64 (TR530E/TR550E)
(PAL JOG Process)

SL-38 (MECHA CONTROL) SCHEMATIC DIAGRAM

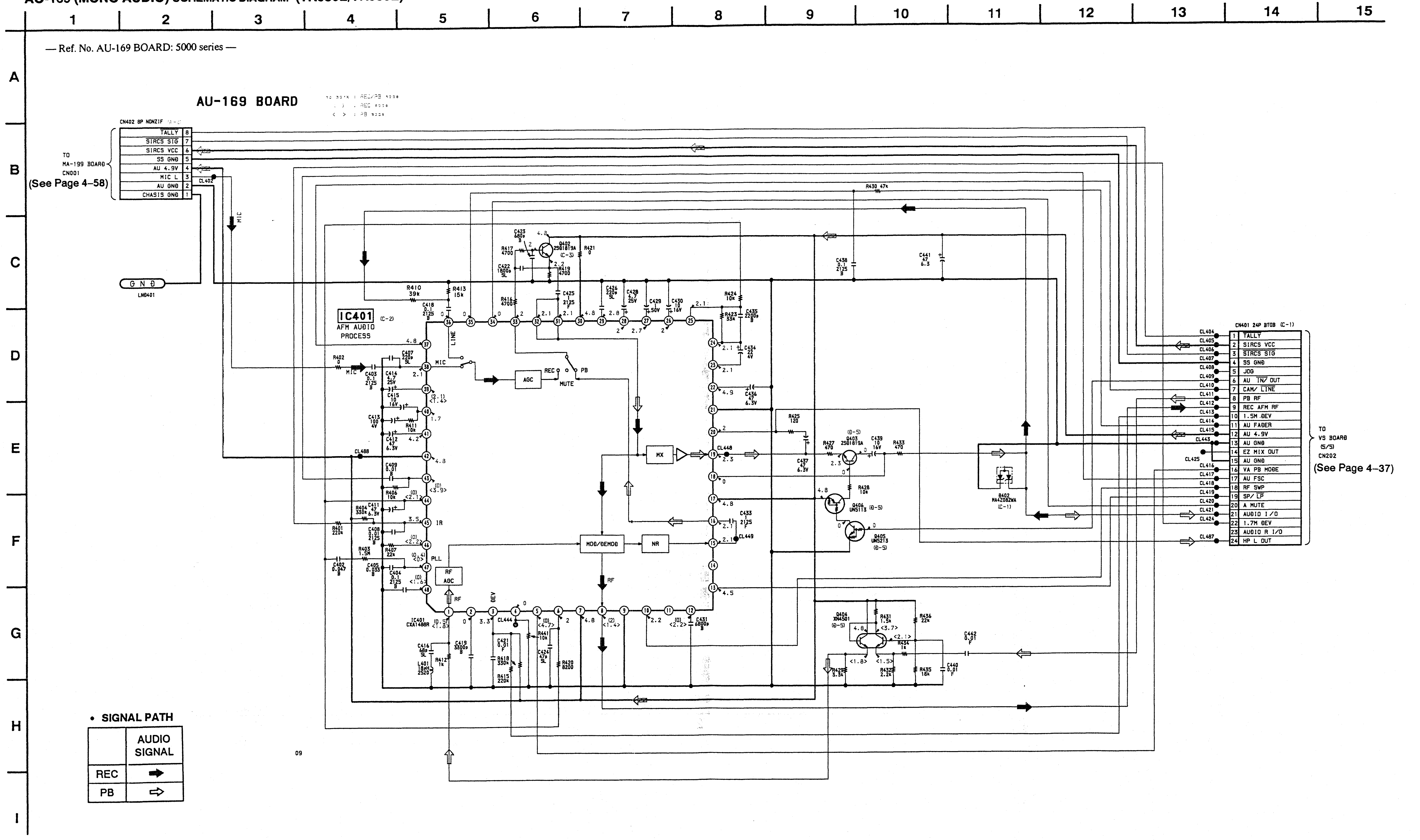

— Ref. No. SL-38 BOARD: 4000 series —
·LM-40 & LS-33 BOARD is replaced as a block, so that there PRINTED WIRING BOARD is omitted.
A-MECHA
M903 LOADING MOTOR
LM-40 BOARD
CN512 4P
UNLOAD
LOAD
W501 FP-437 4P
M901 DRUM MOTOR
CN500 7P
PG (+)
PG/FG COM
FG (+)
COM
W
V
U
S001 MODE SWITCH
R009 DEW SENSE
S005 CC DOWN SWITCH
M SW 2
M SW 1
M SW 0
DEW SENS
SS GND
CC DOWN
CN501 6P
Q001, 002 TAPE TOP/END SENSER
Q002 PT4600FS
D001 GL4600S
Q001 PT4600FS
CN001 15P
CN502 15P
T/E SENS
MD SENSOR 3.6V
TOP LED
END LED
T REEL (+)
T REEL (-)
REEL HALL CONT
S REEL (+)
S REEL (-)
13U/7U
13U/10U
MP/ ME
MP/MP-HG
REC PROF
H001 LT1405AZ
H002 LT1405AZ
S002 TAPE SELECT REC PROOF
LS-33 BOARD
M902 CAPSTAN MOTOR
CN511 6P
UNREG GND
VS
VCC
STBY
REC CAP/FG
FG OUT
TO VS BOARD (4/5) CN505 37Pin-42Pin
(See Page 4-35)
SL-38 BOARD
IC507
LOADING MOTOR DRIVE
REEL FG AMP
LED DRIVE
DRUM PG/FG WAVE SHAPER
LANC I/O
IC507 MPC1780VFUEB
Q561 2SB1462
Q560 2SB1121-ST-TD
Q562 XN4501-TX
Q560, 561, 562 3.6V SERIES REGULATOR
R567 SPACER RESISTER
W500 36P
LIMIT-ENABLE
S REEL FG
DEW SENS
T REEL FG
M SW 0
M SW 1
M SW 2
D FG
LIMITOUT
REC PROF
CC DOWN
D PG
ME/ MP
LOAD
MP/ HI-8 MP
COM
V
POWER-CONT
W
WAKE UP
U
UNLOAD
MT UNREG GND
T/E LED ON
MTSV
DATA OUT
SS GND
DATA IN
EVER 3.6V
SS 3.6V
LANC OUT
UNREG
TOP SENS
LANC DC
END SENS
TO VS BOARD (4/5) CN505 1Pin-36Pin
(See Page 4-35)

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	

AU-169 (MONO AUDIO) SCHEMATIC DIAGRAM (TR530E/TR550E)

— Ref. No. AU-169 BOARD: 5000 series —


1
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12
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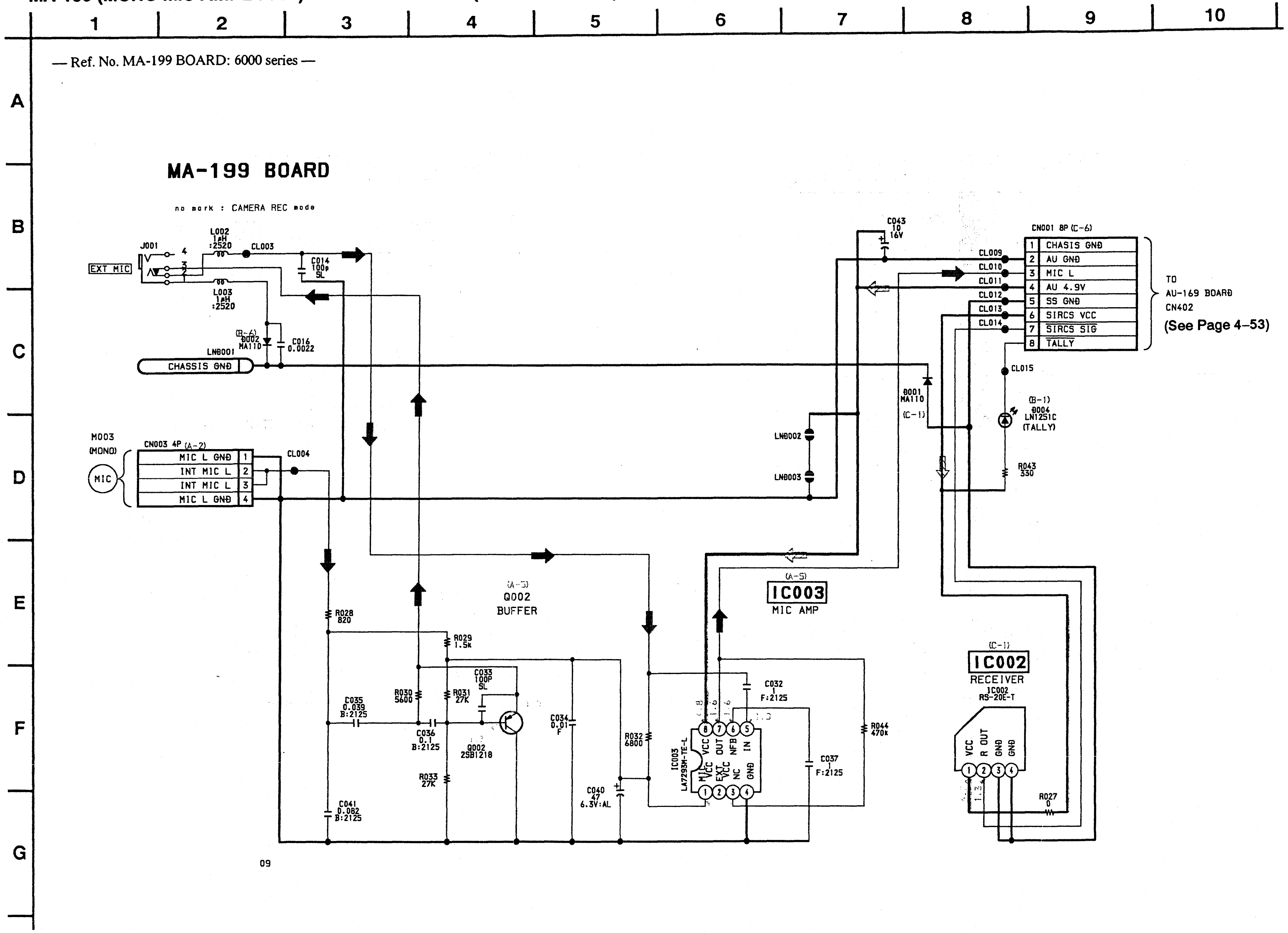
14
15
A
B
C
D
E
F
G
H
I
AU-169 BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
CN402 8P NONZIF (A-2)
TALLY 8
SIRCS SIG 7
SIRCS VCC 6
SS GND 5
AU 4.9V 4
MIC L 3
AU GND 2
CHASIS GND 1
TO
MA-199 BOARD
CN001
(See Page 4-58)
CL402
MIC
GND
LND401
IC401 (C-2)
AFM AUDIO
PROCESS
IC401
CXA1486R
LINE
MIC
AGC
REC
PB
MUTE
MIX
MOD/DEMOD
NR
RF
AGC
RF
PLL
IR
DEV
Q402
2SB1819A
(C-3)
Q403
2SB1819A
(D-5)
Q404
XN4501
(D-5)
Q405
UN5213
(D-5)
Q406
UN5113
(D-5)
D402
MA4Z082WA
(C-1)
L401
18μH
2520
CN401 24P BTOB (C-1)
1 TALLY
2 SIRCS VCC
3 SIRCS SIG
4 SS GND
5 JOG
6 AU IN/ OUT
7 CAM/ LINE
8 PB RF
9 REC AFM RF
10 1.5M DEV
11 AU FADER
12 AU 4.9V
13 AU GND
14 EZ MIX OUT
15 AU GND
16 VA PB MODE
17 AU FSC
18 RF SWP
19 SP/ LP
20 A MUTE
21 AUDIO I/O
22 1.7M DEV
23 AUDIO R I/O
24 HP L OUT
CL404
CL405
CL406
CL407
CL408
CL409
CL410
CL411
CL412
CL413
CL414
CL415
CL443
CL425
CL416
CL417
CL418
CL419
CL420
CL421
CL424
CL487
TO
VS BOARD
(5/5)
CN202
(See Page 4-37)
09

- **SIGNAL PATH**

	AUDIO SIGNAL
REC	➡
PB	⇨

MA-199 (MONO MIC AMPLIFIER) SCHEMATIC DIAGRAM (TR530E/TR550E)



— Ref. No. MA-199 BOARD: 6000 series —

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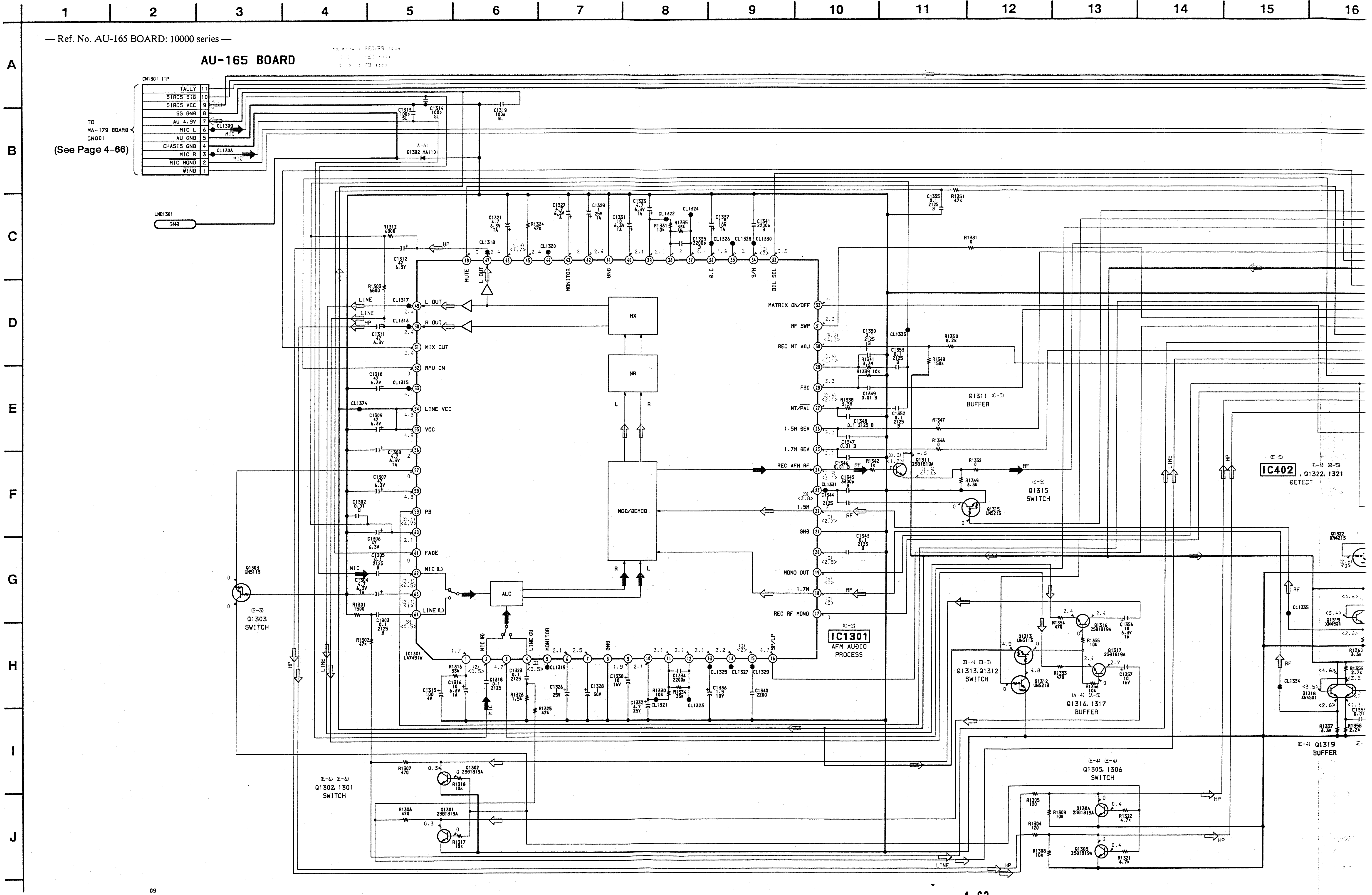
A
B
C
D
E
F
G
MA-199 BOARD
no mark : CAMERA REC mode
EXT MIC
J001
L002 1μH :2520
CL003
C014 100p SL
L003 1μH :2520
(B-6) D002 MA110
C016 0.0022
LN8001
CHASSIS GND
M003 (MONO)
MIC
CN003 4P (A-2)
MIC L GND 1
INT MIC L 2
INT MIC L 3
MIC L GND 4
CL004
C043 10 16V
CN001 8P (C-6)
CL009
CL010
CL011
CL012
CL013
CL014
1 CHASIS GND
2 AU GND
3 MIC L
4 AU 4.9V
5 SS GND
6 SIRCS VCC
7 SIRCS SIG
8 TALLY
TO AU-169 BOARD CN402
(See Page 4-53)
D001 MA110 (C-1)
LN8002
LN8003
CL015
(B-1) D004 LN1251C (TALLY)
R043 330
(A-5) Q002 BUFFER
(A-5) IC003 MIC AMP
R028 820
R029 1.5k
C033 100P SL
C035 0.039 B:2125
R030 5600
R031 27K
C036 0.1 B:2125
Q002 2SB1218
R033 27K
C041 0.082 B:2125
C034 0.01 F
C040 47 6.3V:AL
R032 6800
IC003 LA7293M-TE-L
VCC OUT NFB IN
MIC VCC EXT VCC NC GND
C032 1 F:2125
C037 1 F:2125
R044 470k
(C-1) IC002 RECEIVER
IC002 RS-20E-T
VCC R OUT GND GND
R027 0
09

- SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	

AU-165 (STEREO AUDIO) SCHEMATIC DIAGRAM (TR570E/TR650E/TR750E)

— Ref. No. AU-165 BOARD: 10000 series —



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12
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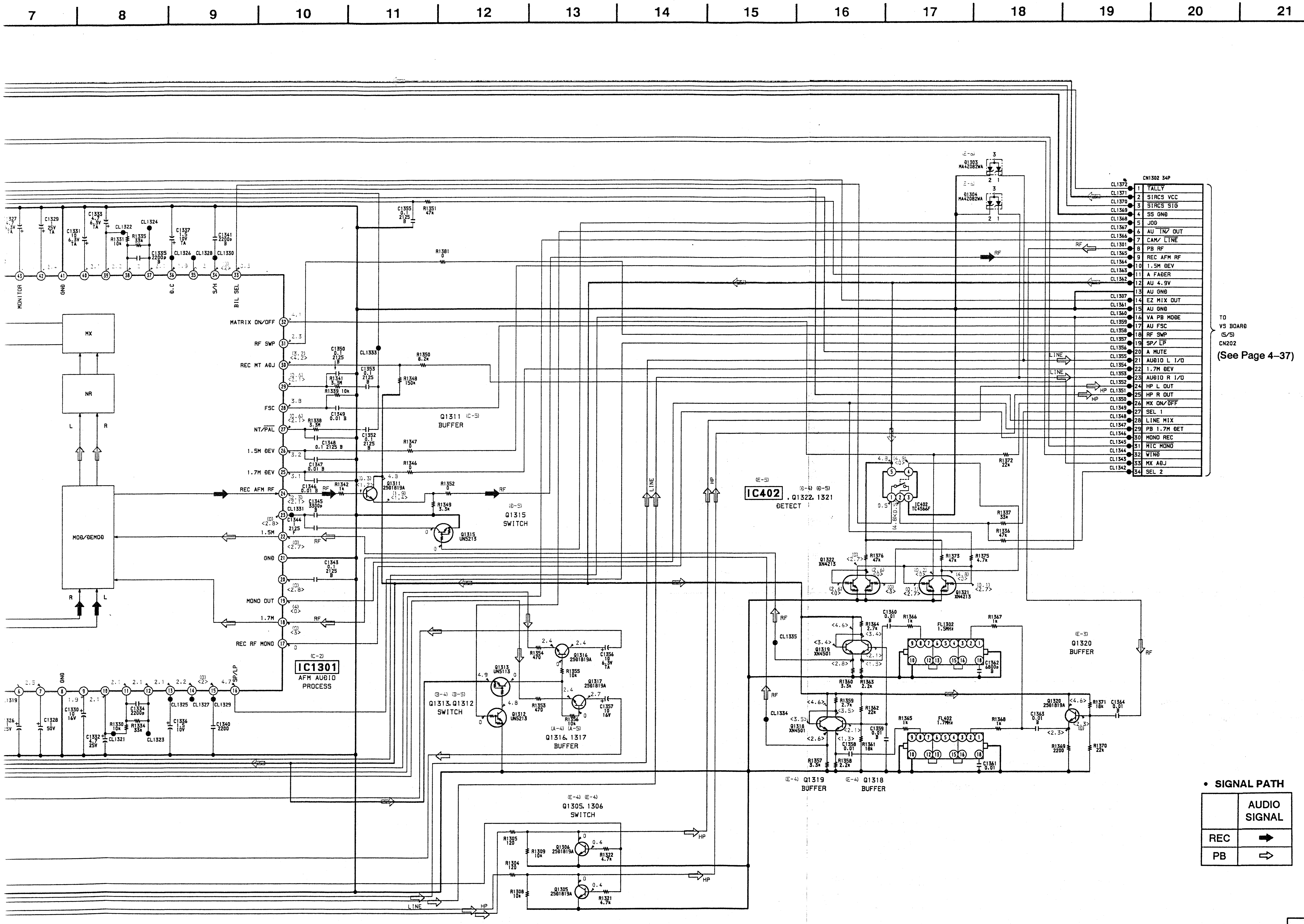
14
15
16
A
B
C
D
E
F
G
H
I
J
AU-165 BOARD
CN1301 11P
TALLY
SIRCS SIG
SIRCS VCC
SS GND
AU 4.9V
MIC L
AU GND
CHASIS GND
MIC R
MIC MONO
WIND
TO MA-179 BOARD CN001
(See Page 4-66)
LND1301
GND
D1302 MA110
MATRIX ON/OFF
RF SWP
REC MT ADJ
FSC
NT/PAL
1.5M DEV
1.7M DEV
REC AFM RF
1.5M
GND
MONO OUT
1.7M
REC RF MONO
L OUT
R OUT
MIX OUT
RFU ON
LINE VCC
VCC
PB
FADE
MIC (L)
LINE (L)
MUTE
MONITOR
S/H
BIL SEL
MIX
NR
MOD/DEMOD
ALC
MIC (R)
LINE (R)
SP/LP
IC1301
LA7491W
(C-2)
IC1301
AFM AUDIO PROCESS
Q1303 UN5113
(B-3)
Q1303
SWITCH
Q1311 (C-5)
BUFFER
Q1311 2SD1819A
Q1315 UN5213
(D-5)
Q1315
SWITCH
(E-5)
IC402
(E-4) (D-5)
Q1322, 1321
DETECT
Q1313 UN5113
Q1312 UN5213
(D-4) (D-5)
Q1313, Q1312
SWITCH
Q1316 2SD1819A
Q1317 2SD1819A
(A-4) (A-5)
Q1316, 1317
BUFFER
Q1322 XN4213
Q1319 XN4501
Q1318 XN4501
(E-4) Q1319
BUFFER
(E-6) (E-6)
Q1302, 1301
SWITCH
Q1302 2SD1819A
Q1301 2SD1819A
(E-4) (E-4)
Q1305, 1306
SWITCH
Q1306 2SD1819A
Q1305 2SD1819A
HP
LINE
RF
MIC


7
8
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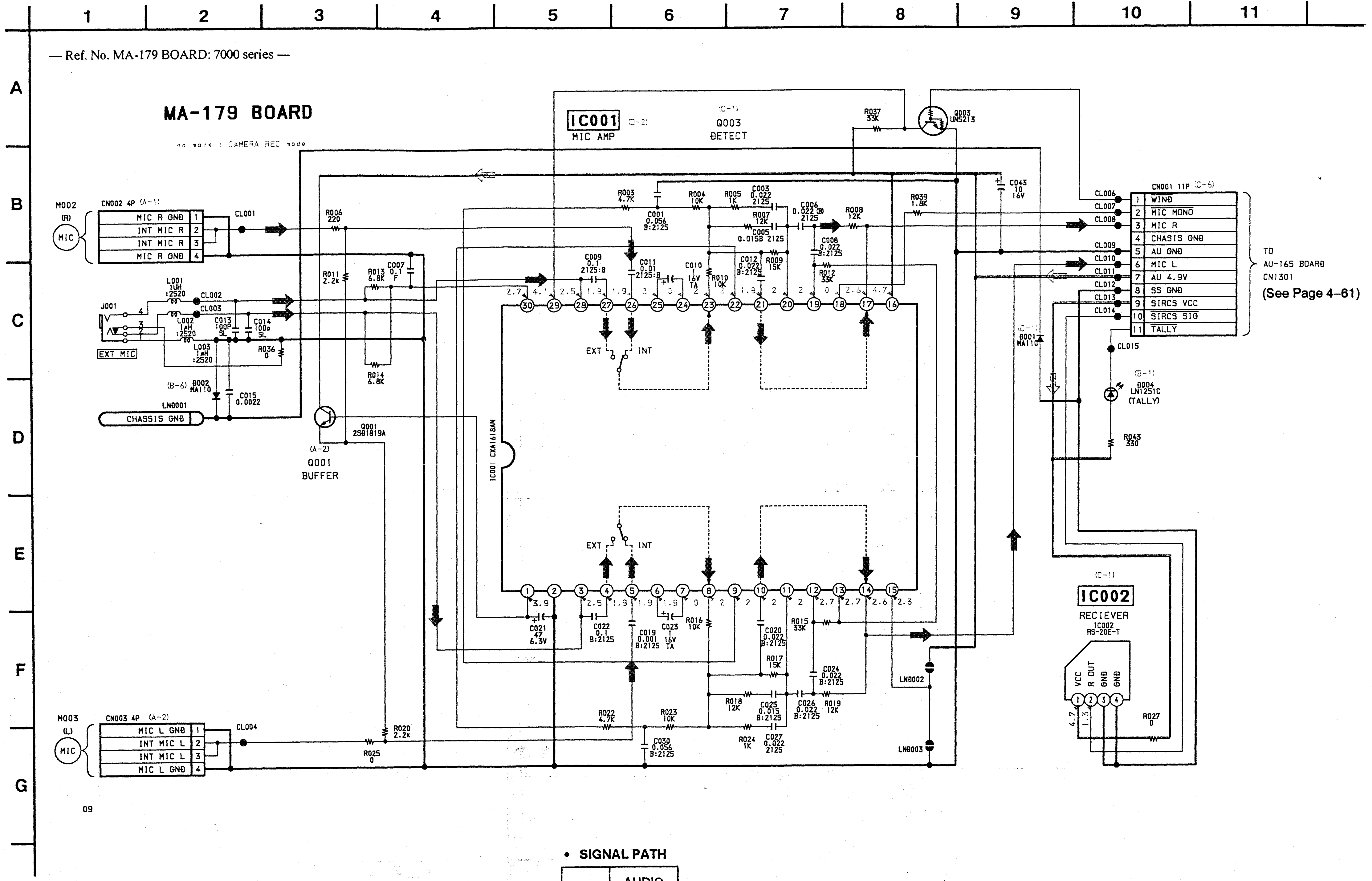
11
12
13
14
15
16
17
18
19
20
21
MX
NR
MOD/DEMOD
IC1301
AFM AUDIO PROCESS
MATRIX ON/OFF
RF SWP
REC MT ADJ
FSC
NT/PAL
1.5M DEV
1.7M DEV
REC AFM RF
1.5M
GND
MONO OUT
1.7M
REC RF MONO
MONITOR
GND
D.C
S/H
BIL SEL
SP/LP
Q1311 BUFFER
Q1315 SWITCH
IC402
Q1322, 1321 DETECT
Q1313, Q1312 SWITCH
Q1316, 1317 BUFFER
Q1305, 1306 SWITCH
Q1319 BUFFER
Q1318 BUFFER
Q1320 BUFFER
FL1302 1.5MHz
FL402 1.7MHz
IC402 TC4S66F
Q1303 MA4Z082WA
Q1304 MA4Z082WA
CN1302 34P
1 TALLY
2 SIRCS VCC
3 SIRCS SIG
4 SS GND
5 JOG
6 AU IN/OUT
7 CAM/LINE
8 PB RF
9 REC AFM RF
10 1.5M DEV
11 A FADER
12 AU 4.9V
13 AU GND
14 EZ MIX OUT
15 AU GND
16 VA PB MODE
17 AU FSC
18 RF SWP
19 SP/LP
20 A MUTE
21 AUDIO L I/O
22 1.7M DEV
23 AUDIO R I/O
24 HP L OUT
25 HP R OUT
26 MX ON/OFF
27 SEL 1
28 LINE MIX
29 PB 1.7M DET
30 MONO REC
31 MIC MONO
32 WIND
33 MX ADJ
34 SEL 2
TO VS BOARD (5/5) CN202
(See Page 4-37)
RF
LINE
HP
• SIGNAL PATH
AUDIO SIGNAL
REC ➡
PB ⇨

AUDIO (STEREO)

MA-179 (STEREO MIC AMPLIFIER) SCHEMATIC DIAGRAM (TR570E/TR650E/TR750E)

— Ref. No. MA-179 BOARD: 7000 series —


1
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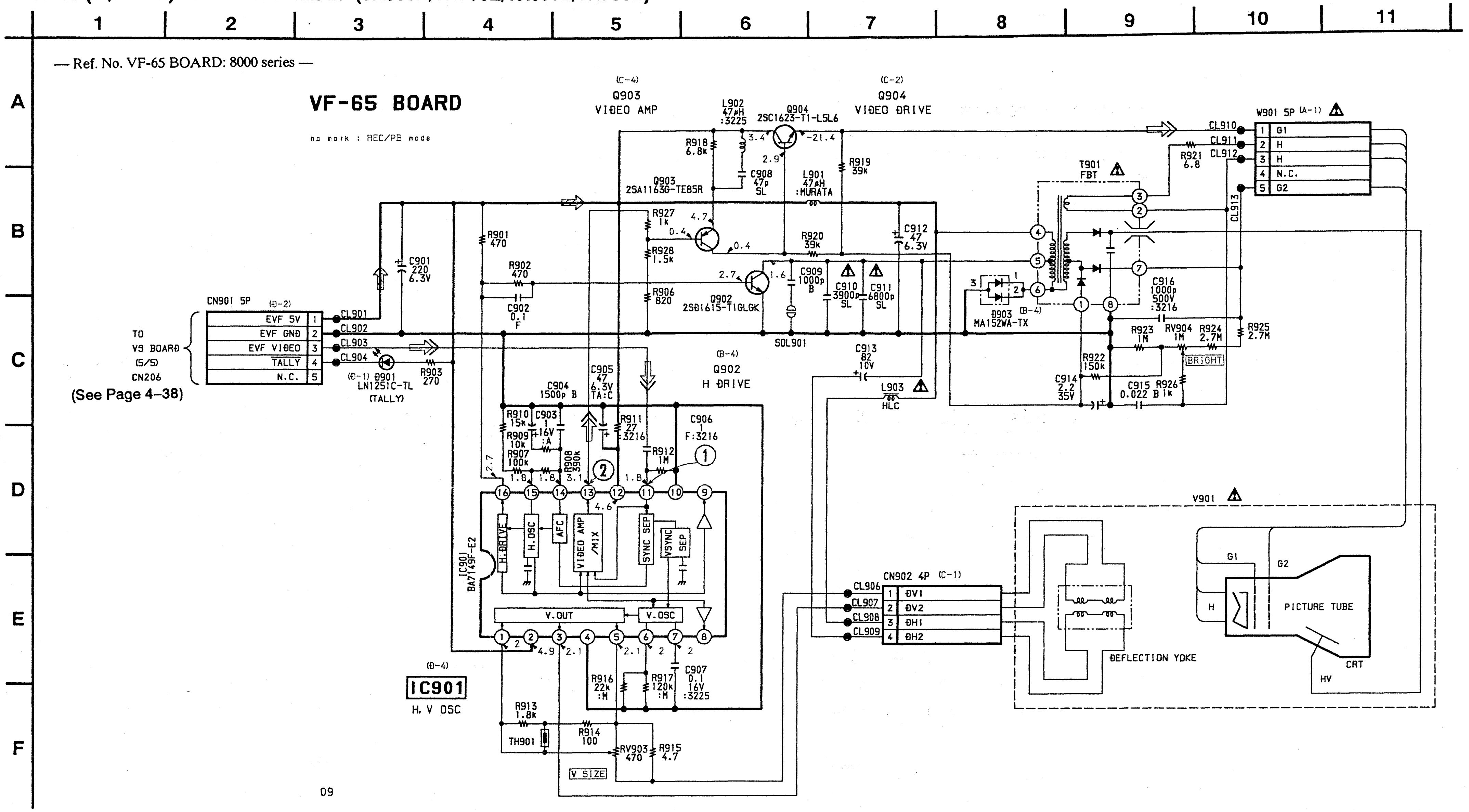
11
A
B
C
D
E
F
G
MA-179 BOARD
no mark : CAMERA REC mode
IC001 (B-2) MIC AMP
(C-1) Q003 DETECT
R037 33K
Q003 UN5213
M002 (R) MIC
CN002 4P (A-1)
MIC R GND 1
INT MIC R 2
INT MIC R 3
MIC R GND 4
CL001
R006 220
R011 2.2k
R013 6.8K
C007 0.1 F
R014 6.8K
J001
EXT MIC
L001 1UH :2520
L002 1µH :2520
L003 1µH :2520
CL002
CL003
C013 100P SL
C014 100p SL
R036 0
(B-6) D002 MA110
C015 0.0022
LND001
CHASSIS GND
Q001 2SB1819A
(A-2) Q001 BUFFER
IC001 CXA1618AN
EXT
INT
R003 4.7K
C001 0.056 B:2125
R004 10K
R005 1K
C003 0.022 2125
R007 12K
C005 0.015B 2125
C006 0.022 B 2125
R008 12K
C008 0.022 B:2125
R012 33K
R039 1.8K
C043 10 16V
C009 0.1 2125:B
C011 0.01 2125:B
C010 1 16V TA
R010 10K
C012 0.022 B:2125
R009 15K
(C-1) D001 MA110
CN001 11P (C-6)
CL006 1 WIND
CL007 2 MIC MONO
CL008 3 MIC R
4 CHASIS GND
CL009 5 AU GND
CL010 6 MIC L
CL011 7 AU 4.9V
CL012 8 SS GND
CL013 9 SIRCS VCC
CL014 10 SIRCS SIG
11 TALLY
TO AU-165 BOARD CN1301
(See Page 4-61)
CL015
(B-1) D004 LN1251C (TALLY)
R043 330
C021 47 6.3V
C022 0.1 B:2125
C019 0.001 B:2125
C023 1 16V TA
R016 10K
C020 0.022 B:2125
R015 33K
R017 15K
C024 0.022 B:2125
R018 12K
C025 0.015 B:2125
C026 0.022 B:2125
R019 12K
R022 4.7K
R023 10K
C030 0.056 B:2125
R024 1K
C027 0.022 2125
LND002
LND003
(C-1) IC002 RECIEVER IC002 RS-20E-T
VCC
R OUT
GND
GND
R027 0
M003 (L) MIC
CN003 4P (A-2)
MIC L GND 1
INT MIC L 2
INT MIC L 3
MIC L GND 4
CL004
R020 2.2k
R025 0
09

- **SIGNAL PATH**

	AUDIO SIGNAL
REC	➡
PB	

VF-65 (W/B EVF) SCHEMATIC DIAGRAM (TR530E/TR550E/TR650E/TR750E)

— Ref. No. VF-65 BOARD: 8000 series —


1
2
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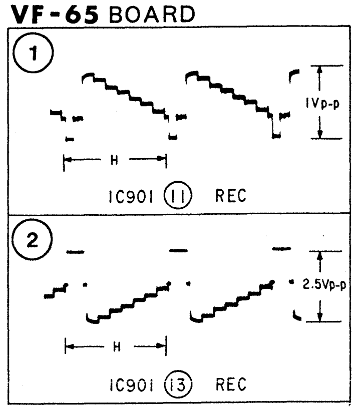
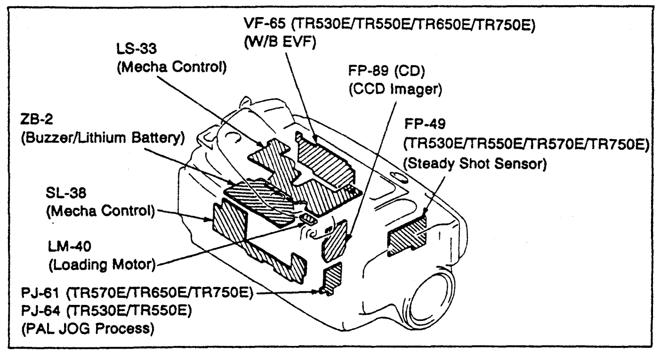
10
11
A
B
C
D
E
F
VF-65 BOARD
no mark : REC/PB mode
Q903
VIDEO AMP
Q904
VIDEO DRIVE
Q904
2SC1623-T1-L5L6
Q903
2SA1163G-TE85R
Q902
2SD1615-T1GLK
Q902
H DRIVE
L902
47μH
L901
47μH
:MURATA
R918
6.8k
R919
39k
R901
470
R902
470
R927
1k
R928
1.5k
R906
820
R920
39k
C901
220
6.3V
C902
0.1
C908
47p
SL
C909
1000p
C910
3900p
C911
6800p
C912
47
6.3V
SOL901
CN901 5P
EVF 5V
EVF GND
EVF VIDEO
TALLY
N.C.
CL901
CL902
CL903
CL904
TO
VS BOARD
(5/5)
CN206
(See Page 4-38)
D901
LN1251C-TL
(TALLY)
R903
270
C913
82
10V
L903
HLC
T901
FBT
D903
MA152WA-TX
C916
1000p
500V
R923
1M
RV904
1M
R924
2.7M
R925
2.7M
BRIGHT
R922
150k
C914
2.2
35V
C915
0.022
R926
1k
W901 5P
CL910
CL911
CL912
CL913
R921
6.8
G1
H
H
N.C.
G2
C904
1500p
C905
47
6.3V
C906
C903
R910
15k
R909
10k
R907
100k
R908
390k
R911
27
R912
1M
H.DRIVE
H.OSC
AFC
VIDEO AMP
/MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
IC901
BA7143F-E2
IC901
H, V OSC
R916
22k
R917
120k
C907
0.1
16V
R913
1.8k
TH901
R914
100
RV903
470
R915
4.7
V SIZE
CN902 4P
CL906
CL907
CL908
CL909
DV1
DV2
DH1
DH2
V901
DEFLECTION YOKE
G1
G2
H
PICTURE TUBE
CRT
HV
09




VF-65 (TR530E/TR550E/TR650E/TR750E)
(W/B EVF)
LS-33
(Mecha Control)
FP-89 (CD)
(CCD Imager)
ZB-2
(Buzzer/Lithium Battery)
FP-49
(TR530E/TR550E/TR570E/TR750E)
(Steady Shot Sensor)
SL-38
(Mecha Control)
LM-40
(Loading Motor)
PJ-61 (TR570E/TR650E/TR750E)
PJ-64 (TR530E/TR550E)
(PAL JOG Process)

- **SIGNAL PATH**

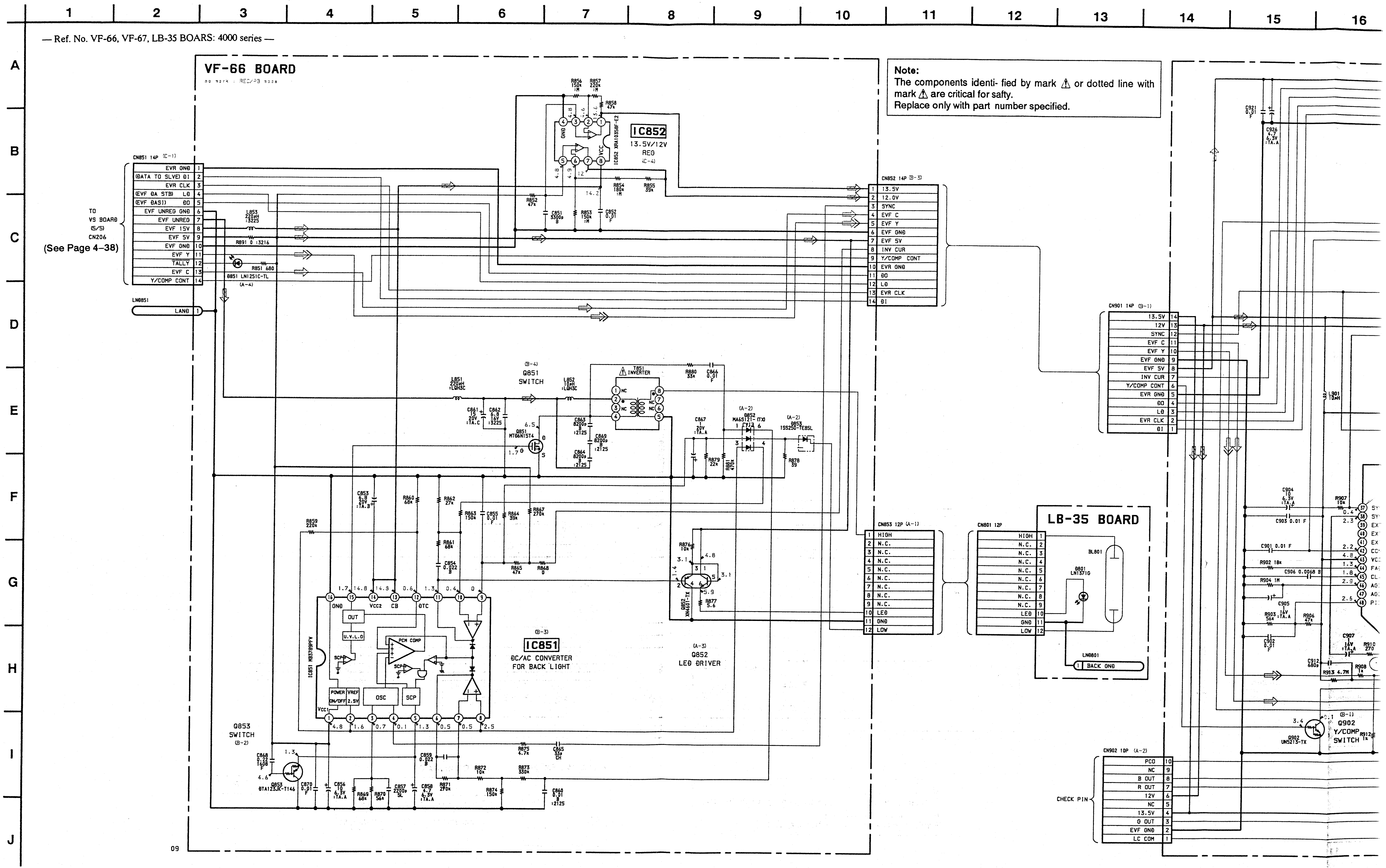
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB		⇨	

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

VF-66 (COLOR EVF), VF-67 (COLOR EVF), LB-35 (BACK LIGHT) SCHEMATIC DIAGRAM (TR570E)

— Ref. No. VF-66, VF-67, LB-35 BOARS: 4000 series —

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.



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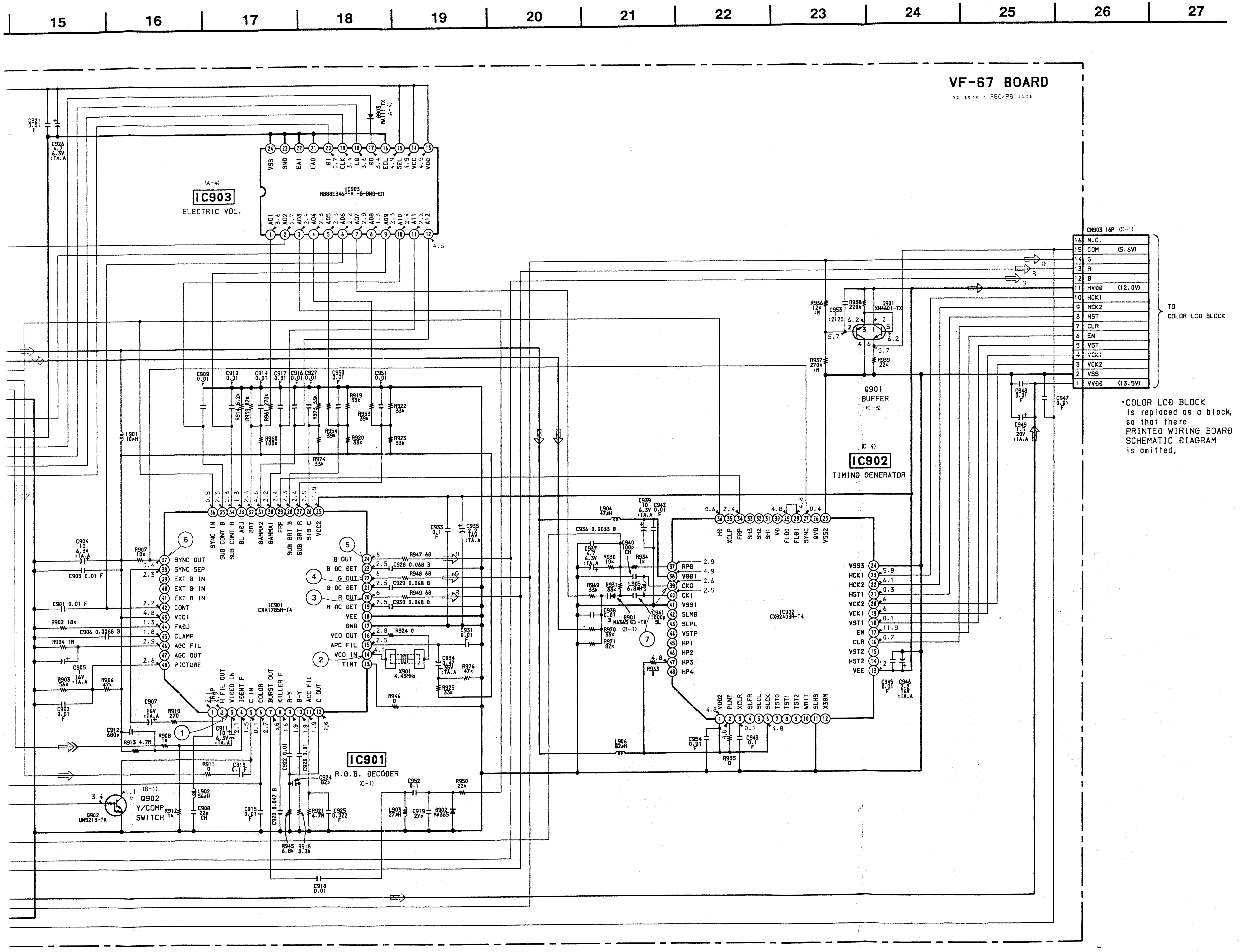
C
D
E
F
G
H
I
J
VF-66 BOARD
no mark : REC/PB mode
IC852
13.5V/12V
REG
(C-4)
IC852 XRA10356F-E2
CN851 14P (C-1)
EVR GND 1
(DATA TO SLVE) DI 2
EVR CLK 3
(EVF DA STB) LD 4
(EVF DASI) DO 5
EVF UNREG GND 6
EVF UNREG 7
EVF 15V 8
EVF 5V 9
EVF GND 10
EVF Y 11
TALLY 12
EVF C 13
Y/COMP CONT 14
TO VS BOARD (S/S) CN206
(See Page 4-38)
LN0851
LAND 1
D851 LN1251C-TL
(A-4)
R851 680
L853 220μH :3225
R891 0 :3216
CN852 14P (B-3)
1 13.5V
2 12.0V
3 SYNC
4 EVF C
5 EVF Y
6 EVF GND
7 EVF 5V
8 INV CUR
9 Y/COMP CONT
10 EVR GND
11 DO
12 LD
13 EVR CLK
14 DI
(B-4)
Q851
SWITCH
Q851 MTD6N15T4
L851 220μH :LQH3C
L852 10μH :LQH3C
⚠ T851 INVERTER
(A-2)
D852 MA6S121-(TX)
(A-2)
D853 1SS250-TE85L
(B-3)
IC851
DC/AC CONVERTER
FOR BACK LIGHT
IC851 MB3789PFV
GND
VCC2
CB
DTC
OUT
U.V.L.O
PCM COMP
SCP
POWER ON/OFF
VREF 2.5V
OSC
VCC1
(A-3)
Q852
LED DRIVER
Q852 XN4401-TX
Q853
SWITCH
(B-2)
Q853 DTA123JK-T146
CN853 12P (A-1)
1 HIGH
2 N.C.
3 N.C.
4 N.C.
5 N.C.
6 N.C.
7 N.C.
8 N.C.
9 N.C.
10 LED
11 GND
12 LOW
CN801 12P
HIGH 1
N.C. 2
N.C. 3
N.C. 4
N.C. 5
N.C. 6
N.C. 7
N.C. 8
N.C. 9
LED 10
GND 11
LOW 12
LB-35 BOARD
BL801
D801 LN1371G
LN0801
1 BACK GND
CN901 14P (B-1)
13.5V 14
12V 13
SYNC 12
EVF C 11
EVF Y 10
EVF GND 9
EVF 5V 8
INV CUR 7
Y/COMP CONT 6
EVR GND 5
DO 4
LD 3
EVR CLK 2
DI 1
L901 10μH
(B-1)
Q902
Y/COMP
SWITCH
Q902 UN5213-TX
CN902 10P (A-2)
PCO 10
NC 9
B OUT 8
R OUT 7
12V 6
NC 5
13.5V 4
G OUT 3
EVF GND 2
LC COM 1
CHECK PIN
09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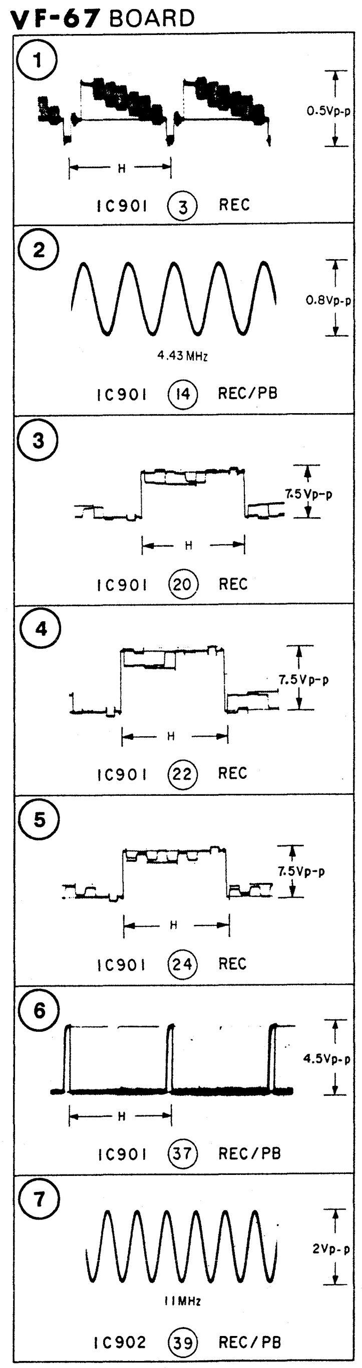
VF-67 BOARD
no mark : REC/PB mode
IC903
ELECTRIC VOL.
IC903 MB88E346PFV -G-BND-ER
(A-4)
D903 MA111-TX (A-4)
VSS
GND
EA1
EA0
DI
CLK
LD
DO
ECL
SEL
VCC
VDD
AO1
AO2
AO3
AO4
AO5
AO6
AO7
AO8
AO9
A10
A11
A12
CN903 16P (C-1)
N.C.
COM (5.6V)
G
R
B
HVDD (12.0V)
HCK1
HCK2
HST
CLR
EN
VST
VCK1
VCK2
VSS
VVDD (13.5V)
TO COLOR LCD BLOCK
Q901 XN4601-TX
Q901 BUFFER (C-3)
(C-4)
IC902
TIMING GENERATOR
IC902 CXD2403R-T4
RPD
VDD1
CKO
CKI
VSS1
SLMB
SLPL
VSTP
HP1
HP2
HP3
HP4
HD
XCLP
FRP
SH3
SH2
SH1
VD
FLD1
SYNC
DVD
VSS2
VSS3
HCK1
HCK2
HST1
VCK2
VCK1
VST1
EN
CLR
VST2
HST2
VEE
VDD2
PLNT
XCLR
SLFR
SLCL
SLCK
TST0
TST1
TST2
WRIT
SLHS
X30M
IC901
R.G.B. DECODER
(C-1)
IC901 CXA1785R-T4
SYNC OUT
SYNC SEP
EXT B IN
EXT G IN
EXT R IN
CONT
VCC1
FADJ
CLAMP
AGC FIL
AGC OUT
PICTURE
SYNC IN
SUB CONT B
SUB CONT R
BL ADJ
BRT
GAMMA2
GAMMA1
FRP
SUB BRT B
SUB BRT R
SID C
VCC2
B OUT
B DC DET
G OUT
G DC DET
R OUT
R DC DET
VEE
GND
VCO OUT
APC FIL
VCO IN
TINT
TRAP
H FIL OUT
VIDEO IN
IDENT F
C IN
COLOR
BURST OUT
KILLER F
R-Y
B-Y
ACC FIL
C OUT
X901 4.43MHz
Q902 UN5213-TX
Q902 Y/COMP SWITCH
(B-1)
D901 MA365 (E)-TX
D902 MA365
L901 10μH
L902 56μH
L903 27μH
L904 47μH
L905 6.8μH
L906 82μH

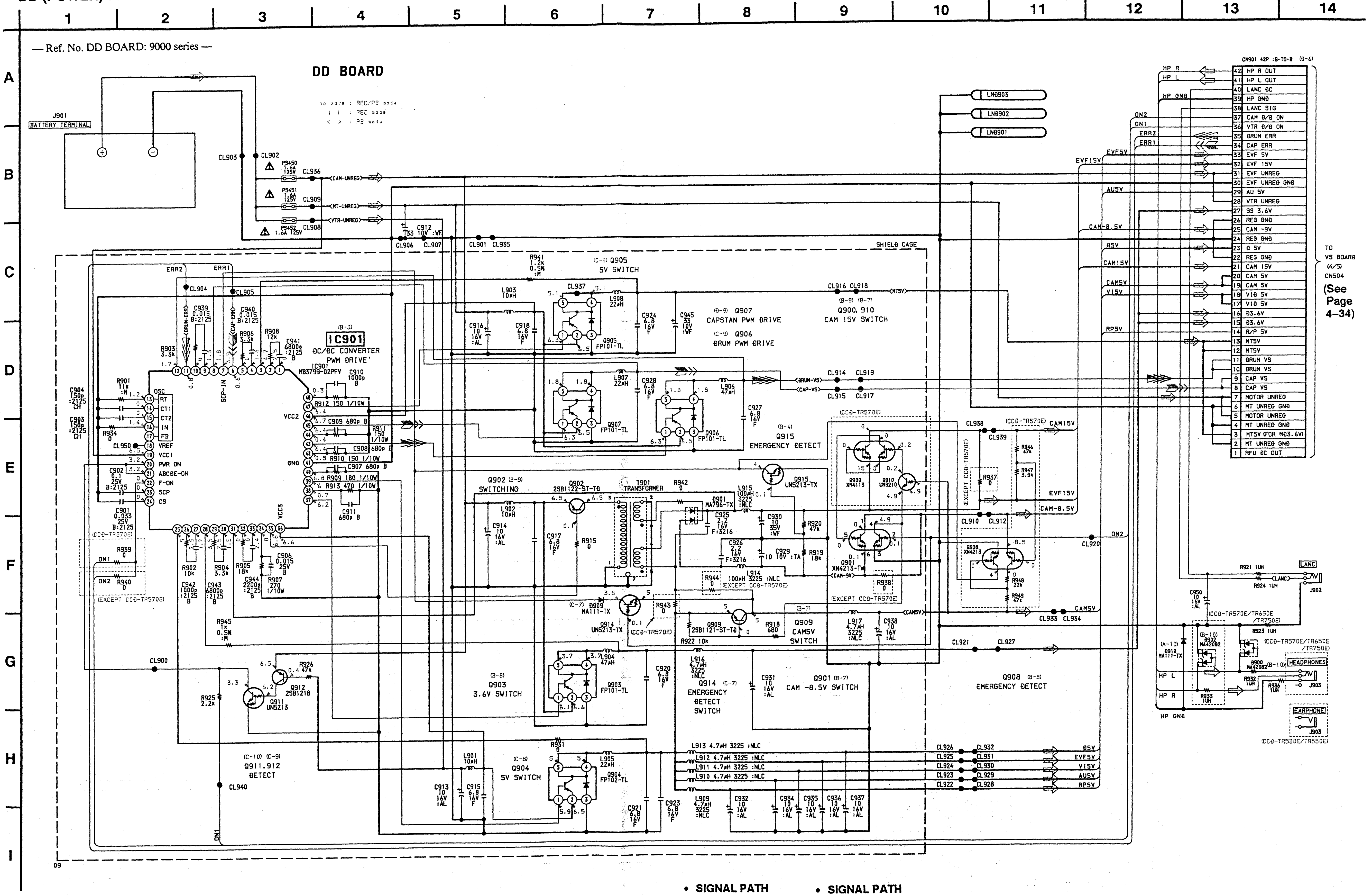
·COLOR LCD BLOCK
is replaced as a block,
so that there
PRINTED WIRING BOARD
SCHEMATIC DIAGRAM
is omitted.



- **SIGNAL PATH**

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB	⇨	⇛	

DD (POWER) SCHEMATIC DIAGRAM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I
— Ref. No. DD BOARD: 9000 series —
DD BOARD
J901
BATTERY TERMINAL
CL903
CL902
PS450 1.6A 125V
CL936
PS451 1.6A 125V
CL909
PS452 1.6A 125V
CL908
<CAM-UNREG>
<MT-UNREG>
<VTR-UNREG>
C912 33 10V :WF
CL906
CL907
CL901
CL935
SHIELD CASE
ERR2
ERR1
CL904
CL905
IC901
DC/DC CONVERTER PWM DRIVE
IC901 MB3799-02PFV
C910 1000p B
R912 150 1/10W
C909 680p B
R911 150 1/10W
C908 680p B
R910 150 1/10W
C907 680p B
R909 180 1/10W
R913 470 1/10W
C911 680p B
VCC2
VCC3
GND
OSC
RT
CT1
CT2
IN
FB
VREF
VCC1
PWR ON
ABCDE-ON
F-ON
SCP
CS
R901 11k
C904 150p :2125 CH
C903 150p :2125 CH
R934 0
CL950
C902 0.1 25V B:2125
C901 0.033 25V B:2125
(CCD-TR570E)
R939 0
ON1
ON2
R940 0
(EXCEPT CCD-TR570E)
R903 3.3k
C939 0.015 B:2125
C940 0.015 B:2125
R906 3.3k
R908 12k
C941 6800p :2125 B
R902 10k
R904 3.3k
R905 18k
C906 0.015 25V B
C942 1000p :2125 B
C943 6800p :2125 B
C944 2200p :2125 B
R907 270 1/10W
R945 1k 0.5% :M
CL900
R926 47k
Q912 2SB1218
Q911 UN5213
R925 2.2k
Q911, 912 DETECT
CL940
ON1
R941 1.2k 0.5% :M
Q905 5V SWITCH
L903 10µH
CL937
L908 22µH
C916 10 16V :AL
C918 6.8 16V F
Q905 FP101-TL
C924 6.8 16V F
C945 33 10V :WF
Q907 CAPSTAN PWM DRIVE
Q906 DRUM PWM DRIVE
L907 22µH
C928 6.8 16V F
L906 47µH
Q907 FP101-TL
Q906 FP101-TL
C927 6.8 16V F
Q915 EMERGENCY DETECT
Q915 UN5213-TX
CL916 CL918
<MTSV>
Q900, 910 CAM 15V SWITCH
CL914 CL919
<DRUM-VS>
<CAP-VS>
CL915 CL917
Q900 XN4113
Q910 UN9210
Q902 SWITCHING
Q902 2SB1122-ST-TD
T901 TRANSFORMER
R942 0
L915 100µH
D901 MA796-TX
C925 2.2 16V F:3216
C930 10 35V :WF
R920 47k
L902 10µH
C914 10 16V :AL
C917 6.8 16V F
R915 0
C926 2.2 16V F:3216
C929 10 10V :TA
R919 18k
Q901 XN4213-TW
<CAM-9V>
R944 0
L914 100µH 3225 :NLC
(EXCEPT CCD-TR570E)
R938 0
Q909 MA111-TX
D914 UN5213-TX
R943 0
Q909 2SB1121-ST-TD
R918 680
Q909 CAM5V SWITCH
R922 10k
L917 4.7µH 3225 :NLC
C938 10 16V :AL
Q903 3.6V SWITCH
L904 47µH
Q903 FP101-TL
C920 6.8 16V F
L916 4.7µH 3225 :NLC
Q914 EMERGENCY DETECT SWITCH
C931 10 16V :AL
Q901 CAM -8.5V SWITCH
R931 0
Q904 5V SWITCH
L901 10µH
L905 22µH
Q904 FP102-TL
C913 10 16V :AL
C915 6.8 16V F
C921 6.8 16V F
C923 6.8 16V F
L913 4.7µH 3225 :NLC
L912 4.7µH 3225 :NLC
L911 4.7µH 3225 :NLC
L910 4.7µH 3225 :NLC
L909 4.7µH 3225 :NLC
C932 10 16V :AL
C934 10 16V :AL
C935 10 16V :AL
C936 10 16V :AL
C937 10 16V :AL
CL938
CL939
CAM15V
R946 47k
R947 3.9k
R937 0
EVF15V
CAM-8.5V
CL910 CL912
Q908 XN4213
R948 22k
R949 47k
CL920
CL933 CL934
CAM5V
CL921
CL927
Q908 EMERGENCY DETECT
CL926 CL932
CL925 CL931
CL924 CL930
CL923 CL929
CL922 CL928
D5V
EVF5V
V15V
AU5V
RP5V
LN0903
LN0902
LN0901
HP R
HP L
HP GND
ON2
ON1
ERR2
ERR1
EVF5V
EVF15V
AU5V
CAM-8.5V
D5V
CAM15V
CAM5V
V15V
RP5V
ON2
CN901 42P :B-TO-B
42 HP R OUT
41 HP L OUT
40 LANC DC
39 HP GND
38 LANC SIG
37 CAM D/D ON
36 VTR D/D ON
35 DRUM ERR
34 CAP ERR
33 EVF 5V
32 EVF 15V
31 EVF UNREG
30 EVF UNREG GND
29 AU 5V
28 VTR UNREG
27 SS 3.6V
26 REG GND
25 CAM -9V
24 REG GND
23 D 5V
22 REG GND
21 CAM 15V
20 CAM 5V
19 CAM 5V
18 V10 5V
17 V10 5V
16 D3.6V
15 D3.6V
14 R/P 5V
13 MT5V
12 MT5V
11 DRUM VS
10 DRUM VS
9 CAP VS
8 CAP VS
7 MOTOR UNREG
6 MT UNREG GND
5 MOTOR UNREG
4 MT UNREG GND
3 MT5V (FOR MD3.6V)
2 MT UNREG GND
1 RFU DC OUT
TO VS BOARD (4/5) CN504
(See Page 4-34)
R921 1UH
<LANC>
R924 1UH
LANC
J902
C950 10 16V :AL
(CCD-TR570E/TR650E /TR750E)
R923 1UH
D902 MA42082
Q910 MA111-TX
(CCD-TR570E/TR650E /TR750E)
D900 MA42082
HEADPHONES
HP L
HP R
HP GND
R932 1UH
R933 1UH
R936 1UH
J903
EARPHONE
J903
(CCD-TR530E/TR550E)
09
no mark : REC/PB mode
( ) : REC mode
< > : PB mode

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

- **SIGNAL PATH**

	AUDIO SIGNAL
REC	
PB	⇨

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum servo (speed and phase)		⇛	
Capstan servo (speed and phase)		⇒»	

SECTION 6
INTERFACES • IC PIN

6-1. CAMERA CONTROL MICRO PROCESSOR PIN FUNCTION (VC BOARD IC602: SC424608 MC68HC11MA8FU) (TR650E/TR750E: AEP, UK) (VC BOARD IC602: MC68HC11MA8FU) (TR530E/TR550E/TR570E/TR750E: E, AUS)

Pin No.	Signal Name	I/O	Function
1	VTR SI	I	Serial data input from mode control microprocessor (VS board IC503).
2	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock from/to mode control microprocessor.
3	$\overline{\text{CAM CS}}$	I	Chip select signal from mode control microprocessor.
4			Not used.
5			
6			
7			
8			
9	PBV	I	V sync signal from servo/mechanism control microprocessor (VS board IC505).
10			Not used (connected to +3.6V).
11			
12	VDD		+3.6V power supply.
13	VSS		GND
14	$\overline{\text{CS TG}}$	O	Chip select signal to timing generator (IC702).
15			Not used (connected to +3.6V).
16	START	O	Operation signal of IC705. Normally "L". "H" during operation.
17	WEN	I	Write enable signal from timing generator (IC702). Normally "H".
18			Not used.
19	$\overline{\text{CS VST}}$	O	Chip select signal to steady shot control microprocessor (IC777).
20	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core (IC609).
21	EEPROM BUSY	I	BUSY signal from EEPROM (IC601). Normally "H". "L" during data read/write.
22			Not used.
23	IRIS PWM	O	Iris control signal.
24			Not used.
25			
26	$\overline{\text{TESTX}}$	O	Test signal of IC705. "H": Camera mode, "L": Test/VTR mode.
27	LENS RST LED	O	Lens reset sensor LED ON/OFF. "H": ON, "L": OFF.
28	FC RST	I	Lens focus reset sensor signal input.
29	ZM RST	I	Lens zoom reset sensor signal input.
30	XIRQ		Connected to +3.6V.
31	VDD		+3.6V power supply.
32	VSS		GND
33			Not used.
34			
35			
36	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock.
37	CAM SO	O	Serial data output.
38	CAM SI	I	Serial data input.
39			Not used.
40			
41	VDD		+3.6V power supply.
42	GENERAL A/D	I	Camera core (IC609) discrimination signal input.
43	LENS TYPE	I	Lens type discrimination signal input.
44	ZOOM SW	I	Zoom key signal input. When not pressed: 1.8V, TELE 1: 2.7V, TELE 2: 3.6V, WIDE 1: 0.9V, WIDE 2: 0V.
45	MAN FOCUS (2)	I	Manual focus dial signal (2) input. 0V to 3.4V depending on the dial turning.
46	MAN FOCUS (1)	I	Manual focus dial signal (1) input. 0V to 3.4V depending on the dial turning.
47			Not used. Connected to GND.
48			
49	HALL A/D	I	Hall voltage. Approx. 1V (iris opened) to approx. 3.5V (iris closed).
50	VRL	I	Connected to GND.
51	VRH	I	Connected to +3.6V.
52	VSS		GND
53	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (IC601).
54	$\overline{\text{CS CAM OPD}}$	O	Chip select signal to OPD (IC611).
55	D/A STB	O	Strobe signal to camera EVR (IC603).
56	EEPROM RESET	O	EEPROM (IC601) write disable signal. Normally "H".
57	$\overline{\text{CS AF OPD}}$	O	Chip select signal to AF OPD (IC611).
58	$\overline{\text{CS PDR}}$	O	Chip select signal to pre-driver (IC753).
59	$\overline{\text{CAM ON}}$	O	A/D converter (IC704) ON/OFF signal. Normally "H".
60	$\overline{\text{NTSC}}$	O	"L": NTSC, "H": PAL.
61	IRQ	I	Connected to +3.6V.
62			Not used.
63			
64	$\overline{\text{PDR RST}}$	O	Reset signal to zoom/focus pre-driver (IC753). "H": Camera mode, "L": VTR mode.
65	$\overline{\text{NRML}}\text{/VST}$	O	"H": Steady shot operation, "L": Normal operation.
66	$\overline{\text{VST/CORE RST}}$	O	Reset signal to steady shot control microprocessor (IC777) and camera core (IC609). Normally "H". "L": Reset.
67	$\overline{\text{OPD RST}}$	O	Reset signal to IC611 and IC705. "H": Camera mode, "L": VTR mode.
68			Not used. Connected to GND.
69			
70	VSS		GND
71	VDD		+3.6V power supply.
72			Not used.
73	EXTAL	I	24 MHz clock oscillation circuit.
74	XTAL	O	
75	$\overline{\text{RESET}}$	I	Reset signal from mode control microprocessor (VS board IC503). Normally "H". "L": Reset.
76	MODB		Connected to +3.6V.
77	MODA		Connected to GND.
78	RXD		Not used.
79	TXD		
80	VTR SO	O	Serial data output to mode control microprocessor (VS board IC503).

6-2. STEADY SHOT CONTROL MICRO PROCESSOR PIN FUNCTION
(VC BOARD IC777: CXP87132-010R) (TR750E: AEP, UK)
(VC BOARD IC777: CXP87132-016R) (TR530E/TR550E/TR570E/TR750E: E, AUS)

Pin No.	Signal Name	I/O	Function
1	MPX	O	Not used.
2	$\overline{\text{ADC STBY}}$	O	Standby output to A/D converter (IC776). Normally "H".
3	C RESET	O	Reset signal to PITCH/YAW sensor amplifier (IC772 to IC774) in initializing. Normally "L".
4	PB0/PPO8	O	Not used.
5	PC7/RTO7	O	
6	PC6/RTO6	O	
7	PC5/RTO5	O	
8	PC4/RTO4	O	
9	PC3/RTO3	O	
10	PC2/PPO18	O	
11	PC1/PPO17	O	
12	PC0/PPO16	O	
13	PJ7	O	
14	PJ6	O	
15	PJ5	O	
16	PJ4	O	
17	PJ3	O	
18	PJ2	O	
19	PJ1	O	
20	PJ0	O	
21	PD7	O	
22	PD6	O	
23	PD5	O	
24	PD4	O	
25	PD3	O	
26	PD2	O	
27	PD1	O	
28	PD0	O	
29	PH7	O	
30	PH6	O	
31	PH5	O	
32	PH4	O	
33	PH3	O	
34	PH2	O	
35	PH1	O	
36	PH0	O	
37	MP	I	Connected to GND.
38	$\overline{\text{VST RST}}$	I	Reset signal from camera microprocessor (IC602). Normally "H".
39	VSS		GND. Connected to GND.
40	XTAL	O	Connected to 12 MHz crystal oscillator.

Pin No.	Signal Name	I/O	Function
41	EXTAL	I	Connected to 12 MHz crystal oscillator.
42	$\overline{\text{CS VISTA MICOM}}$	I	Chip select signal from camera microprocessor (IC602).
43	S IN	I	Serial data input from camera microprocessor (IC602).
44	S OUT	O	Serial data output to camera microprocessor (IC602).
45	$\overline{\text{CAM SCK}}$	I	Serial data transfer clock from/to camera microprocessor (IC602).
46	PF7/AN11	O	Not used.
47	PF6/AN10	O	
48	PF5/AN9	O	
49	PF4/AN8	O	
50	AVSS		A/D port GND. Connected to GND.
51	AVREF	I	A/D port reference voltage input. Connected to +3.6V.
52	AVDD		A/D port positive power supply. Connected to +3.6V.
53	PF3/AN7	I	Not used. Connected to +3.6V.
54	PF2/AN6	I	
55	PF1/AN5	I	
56	PF0/AN4	I	
57	AN3	I	
58	AN2	I	
59	AN1	I	
60	AN0	I	
61	PG7/EX11	I	Not used. Connected to GND.
62	CGV	I	V SYNC from sync generator (IC610).
63	FLD	I	FLD signal from sync generator (IC610).
64	PG4/SYNC0	I	Not used. Connected to GND.
65	PG3//PBCTL	I	
66	PG2/DPG	I	
67	PG1/DFG	I	
68	PG0/CFG	I	
69	PE7/DAB1	O	Not used.
70	PE6/DAB0	O	
71	PE5/DAA1	O	
72	PE4/DAA0	O	
73	PE3/PWM1	O	
74	PE2/PWM0	O	
75	PE1//INT2	I	Not used. Connected to +3.6V.
76	PE0//INT0	I	
77	VST SI	I	Serial data input.
78	VST SO	O	Serial data output.
79	/VST SCK	O	Serial data transfer clock.
80	PI4//INT1	O	Not used.

Pin No.	Signal Name	I/O	Function
81	PI3/T0	O	Not used.
82	PI2//PWM	O	
83	PI1/P0	O	
84	PI0/PCK	I	Not used. Connected to +3.6V.
85	PKO	I	
86	GND		GND
87	VDD		+3.6V power supply.
88	VPP		Connected to +3.6V.
89	(/CS_DISP)	O	Not used.
90	PA6/PPO6	O	
91	/CS_ADC	O	Chip select signal to A/D converter (IC776).
92	/CS_ZTG	O	Chip select signal to timing generator (IC702).
93	/CS_ZVST	O	Chip select signal to IC613.
94	PA2/PPO2	O	Not used.
95	PA1/PPO1	O	
96	PA0/PPO0	O	
97	PB7/PPO15	O	
98	PB6/PPO14	O	
99	PB5/PPO13	O	
100	PB4/PPO12	O	

6-3. CAMERA CORE PIN FUNCTION
(VC BOARD IC609: CXD2150R) (TR750E: E, AUS)
(VC BOARD IC609: CXD2150AR)
(TR530E/TR550E/TR570E/TR650E/TR750E: AEP, UK)

Pin No.	Signal Name	I/O	Function	
1	OPD6	O	OPD (IC611) data output.	
2	OPD5	O	OPD data output.	
3	OPD4	O	OPD data output.	
4	OPD3	O	OPD data output.	
5	OPD2	O	OPD data output.	
6	OPD1	O	OPD data output.	
7	OPD0	O	OPD data output, LSB.	
8	OPDID	O	OPD line discrimination signal.	
9	VDD	–	Power supply (+3.6V).	
10	CO3	O	C signal output, MSB (Except CCD-TR650E).	
11	CO2	O	C signal output (Except CCD-TR650E).	
12	CO1	O	C signal output (Except CCD-TR650E).	
13	CO0	O	C signal output, LSB (Except CCD-TR650E).	
14	VSS	–	GND	
15	CI3	I	C signal input, MSB (Except CCD-TR650E).	
16	CI2	I	C signal input (Except CCD-TR650E).	
17	CI1	I	C signal input (Except CCD-TR650E).	
18	CI0	I	C signal input, LSB (Except CCD-TR650E).	
19	NRB	O	C signal. Color discrimination signal.	
20	VDD	–	+3.6V power supply.	
21	VBC		Connected to GND via 0.1 μF capacitor.	Chroma signal D/A converter interface.
22	AVSC		GND	
23	IREFC		Connected to GND via 12 kΩ resistor.	
24	VREFC	I	Full scale output value setting voltage.	
25	VGC		Connected to +3.6V power supply via 0.1 μF capacitor.	
26	AVDC		+3.6V power supply.	
27	IOC	O	Chroma signal output (Current output).	
28	VDD	–	Y I/F power supply (+3.6V).	
29	DICK	O	Memory interface reference clock (Except CCD-TR650E).	
30	CDIS	O	Digital output (chroma) color discrimination signal.	
31	YO7	O	Y signal output, MSB (Except CCD-TR650E).	
32	YO6	O	Y signal output (Except CCD-TR650E).	
33	YO5	O	Y signal output (Except CCD-TR650E).	
34	YO4	O	Y signal output (Except CCD-TR650E).	
35	YO3	O	Y signal output (Except CCD-TR650E).	
36	YO2	O	Y signal output (Except CCD-TR650E).	
37	YO1	O	Y signal output (Except CCD-TR650E).	
38	YO0	O	Y signal output, LSB (Except CCD-TR650E).	
39	DATS	I	DA test pin. (Normally fixed at "L".)	
40	YI7	I	Y signal input, MSB (Except CCD-TR650E).	

Pin No.	Signal Name	I/O	Function	
41	YI6	I	Y signal input (Except CCD-TR650E).	
42	YI5	I	Y signal input (Except CCD-TR650E).	
43	YI4	I	Y signal input (Except CCD-TR650E).	
44	YI3	I	Y signal input (Except CCD-TR650E).	
45	YI2	I	Y signal input (Except CCD-TR650E).	
46	YI1	I	Y signal input (Except CCD-TR650E).	
47	YI0	I	Y signal input, LSB (Except CCD-TR650E).	
48	VSS	–	GND	
49	IOY	O	Y signal output (current output).	Y signal D/A converter interface.
50	AVDY		+3.6V power supply.	
51	VGY		Connected to +3.6V power supply via 0.1 μF capacitor.	
52	VRFY	I	Full scale output value setting voltage.	
53	IRFY		Connected to GND via 12 kΩ resistor.	
54	AVSY		GND	
55	VBY		Connected to GND via 0.1 μF capacitor.	
56	VDD	–	+3.6V power supply	
57	BIN	I	Not used.	
58	GIN	I	Not used.	
59	RIN	I	Not used.	
60	TIKEY	I	Not used.	
61	WKEY	I	Wide ID signal input.	
62	VCK	I	PAL 4 fsc modulation clock.	
63	VHLD	I	Mosaic processing vertical hold control signal.	
64	HHLD	I	Mosaic processing horizontal hold control signal.	
65	CSYN	I	Sync signal (SYNC) input.	
66	LALT	I	PAL line modulation inverted signal input.	
67	CBK	I	Blanking signal (CBLK) input.	
68	BF	I	Burst added signal input.	
69	HD	I	Horizontal sync signal (HD) input.	
70	VD	I	Vertical sync signal (VD) input.	
71	AJST	I	Data sampling pulse input.	
72	VDD	–	+3.6V power supply.	
73	SCK	I	Serial interface clock input from camera microprocessor (IC602).	
74	SI	I	Serial interface data input from camera microprocessor.	
75	XCE	I	Serial interface enable input from camera microprocessor.	
76	SO	O	Serial interface data output to camera microprocessor.	
77	VSS	–	GND	
78	CLK	I	Clock input.	
79	DEF	I	Defect compensation position pulse.	
80	ID	I	Color line discrimination signal.	

Pin No.	Signal Name	I/O	Function
81	MCK	I	Main clock input.
82	VDD	–	+3.6V power supply.
83	XCLR	I	All clear input.
84	VDD	–	AD I/F power supply (+3.6V).
85	ADCK	O	AD converter clock output. Not used.
86	VSS	–	GND
87	AD0	I	AD data input from A/D converter (IC704), MSB.
88	AD1	I	AD data input from A/D converter.
89	AD2	I	AD data input from A/D converter.
90	AD3	I	AD data input from A/D converter.
91	AD4	I	AD data input from A/D converter.
92	AD5	I	AD data input from A/D converter.
93	AD6	I	AD data input from A/D converter.
94	AD7	I	AD data input from A/D converter.
95	AD8	I	AD data input from A/D converter.
96	AD9	I	AD data input from A/D converter, LSB.
97	VDD	–	+3.6V power supply.
98	OPD9	O	OPD (IC611) data output, MSB.
99	OPD8	O	OPD data output.
100	OPD7	O	OPD data output.

6-4. MECHANISM CONTROL MICRO PROCESSOR PIN FUNCTION (VS BOARD IC505: CXP87132-009R)

Note 1: CCD-TR570E/TR650E/TR750E
Note 2: CCD-TR650E/TR750E

<table>
<tr><th>Pin No.</th><th>Signal Name</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>RP PB MODE</td><td>O</td><td>REC/PB switching signal of REC/PB amplifier (VS board IC102) and ATF servo IC (VS board IC508).
"H": PB.</td></tr>
<tr><td>2</td><td>$\overline{\text{FE ON}}$</td><td>O</td><td>Flying erase oscillation on/off control signal. "L": Oscillation.</td></tr>
<tr><td>3</td><td>JOG VD</td><td>O</td><td>False VD signal inserted in playback video signal during variable speed playback.</td></tr>
<tr><td>4</td><td>JOG</td><td>O</td><td>Variable speed playback/normal playback switching signal of video circuit.
"H": Variable speed playback.</td></tr>
<tr><td>5</td><td>$\overline{\text{S JACK IN}}$</td><td>I</td><td>(Note 2)</td></tr>
<tr><td>6</td><td>$\overline{\text{PB 1.7M DET}}$</td><td>I</td><td>AFM stereo tape/monaural tape discrimination input.
"H": During stereo or bilingual tape playback. (Note 1)</td></tr>
<tr><td>7</td><td>JACK MON/$\overline{\text{ST}}$ DET</td><td>I</td><td>Monaural/stereo discrimination input of audio input/output terminal.
"L": When jack is inserted in right channel terminal. (Note 1)</td></tr>
<tr><td>8</td><td>INT VD</td><td>O</td><td>Internal VD signal.</td></tr>
<tr><td>9</td><td>SYSTEM SYNC (PBV)</td><td>O</td><td>System synchronizing signal.</td></tr>
<tr><td>10</td><td>$\overline{\text{SYNC DET}}$</td><td>O</td><td>Sync detect output. "L" when sync is detect.</td></tr>
<tr><td>11</td><td>E/$\overline{\text{L}}$ DET</td><td>I</td><td>Normal/Hi8 discrimination input. "H" when Hi8 tape playback. (Note 2)</td></tr>
<tr><td>12</td><td>$\overline{\text{MIC MONO}}$</td><td>I</td><td>External microphone monaural/stereo discrimination input.
"L": When monaural microphone is used. (Note 1)</td></tr>
<tr><td>13</td><td>MODE SW 0</td><td>I</td><td rowspan="3">Mode switch input.
<table>
<tr><th></th><th>BL</th><th>END</th><th>EJECT</th><th>USE</th><th>LOAD</th><th>READY</th><th>TURN</th><th>REC/PB</th><th>FF</th></tr>
<tr><td>M SW 0</td><td>H</td><td>L</td><td>L</td><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>M SW 1</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td>M SW 2</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>14</td><td>MODE SW 1</td><td>I</td></tr>
<tr><td>15</td><td>MODE SW 2</td><td>I</td></tr>
<tr><td>16</td><td>$\overline{\text{CC DOWN SW}}$</td><td>I</td><td>Cassette compartment down switch input. "L": down</td></tr>
<tr><td>17</td><td>REC PROOF SW</td><td>I</td><td>Recording-proof switch input. "H": REC prohibition.</td></tr>
<tr><td>18</td><td>ME/$\overline{\text{MP}}$ SW</td><td>I</td><td>ME/$\overline{\text{MP}}$ switch input. "L": MP, "H": ME.</td></tr>
<tr><td>19</td><td>Hi8 MP SW</td><td>I</td><td>Hi8 MP switch input. "H": Hi8 MP, "L": Normal MP or ME.</td></tr>
<tr><td>20</td><td>$\overline{\text{LM LIM ON}}$</td><td>O</td><td>Loading motor limiter on detection signal. Normally "H": "L" when limiter is on.</td></tr>
<tr><td>21</td><td>LINE MIX</td><td>O</td><td>Audio stereo/monaural control signal. (Note 1)</td></tr>
<tr><td>22</td><td>MX SEL 1</td><td>O</td><td rowspan="2">When recording: Monaural/stereo switching signal.
<table>
<tr><th></th><th>Monaural</th><th>Stereo</th></tr>
<tr><td>MX SEL 1</td><td>L</td><td>L</td></tr>
<tr><td>MX SEL 2</td><td>H</td><td>L</td></tr>
</table>
When playing back: Monaural/stereo/bilingual switching signal.
<table>
<tr><th></th><th>Stereo</th><th>Main</th><th>Sub</th><th>Monaural</th></tr>
<tr><td>MX SEL 1</td><td>L</td><td>L</td><td>H</td><td>L</td></tr>
<tr><td>MX SEL 2</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
</table>
(Note 1)</td></tr>
<tr><td>23</td><td>MX SEL 2</td><td>O</td></tr>
<tr><td>24</td><td>MX ON/OFF</td><td>O</td><td>Matrix on/off signal. "H": Matrix on (stereo recording/playback) (Note 1)</td></tr>
<tr><td>25</td><td>COMP REC</td><td>O</td><td>Video input/S video input switching signal. "H": Video input.</td></tr>
<tr><td>26</td><td>CAM/$\overline{\text{LINE}}$</td><td>O</td><td>Camera input/line input switching signal. "H": Camera input.</td></tr>
<tr><td>27</td><td>$\overline{\text{WIND}}$</td><td>O</td><td>"L": Wind sound decrease on. (Note 1)</td></tr>
<tr><td>28</td><td>N.C.</td><td></td><td>Not used.</td></tr>
<tr><td>29</td><td>UNLOAD</td><td>O</td><td>Loading motor control signal. When unloading: "H" or "H" pulse.</td></tr>
<tr><td>30</td><td>LOAD</td><td>O</td><td>Loading motor control signal. When loading: "H" or "H" pulse.</td></tr>
</table>

Pin No.	Signal Name	I/O	Function
31	$\overline{\text{LM LIM CONT}}$	O	Loading motor limiter control signal. Momentarily "H" when loading.
32	DRUM ON	O	Drum motor on/off signal. "H" (Approx. 1.3V): Drum on.
33	DRUM RVS	O	Drum rotation direction control signal. Normally "L".
34	N.C.		Not used. (open)
35	$\overline{\text{EDIT}}$	O	Video circuit normal/EDIT switching signal. "L": When edit of menu display is at "ON".
36	E/$\overline{\text{L}}$ OUT	O	Video circuit normal/Hi8 switching signal. "H": Hi8 mode. (Note 2)
37	MP		Connected to GND.
38	$\overline{\text{RESET}}$	I	Reset signal from mode control micro processor (VS board IC503). When reset: "L".
39	VSS		GND
40	XTAL	O	11.719 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{MECHA CON CS}}$	I	Chip select signal from mode control micro processor (VS board IC503).
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MASTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON SCK}}$	I	Serial clock input from mode control micro processor.
46	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
47	VIDEO MUTE	O	Video output mute signal. "H": Mute.
48	MONO REC (1.7M $\overline{\text{ON}}$/OFF)	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off). (Note 1)
49	N.C.		
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS3.6V.
52	AVDD		A/D converter system power supply. Connected to SS3.6V.
53	EXT MIC	I	External microphone discrimination input. Not used.
54	END SENS	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TOP SENS	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	N.C.		Not used. Connected to GND.
58	ATF ERROR	I	ATF error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	VD signal from camera circuit sync generator (VC board IC610). V cycle pulse.
63	FLD	I	FIELD signal from camera circuit sync generator.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65		I	Connected to GND.
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 40 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 3.3 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input.
69	N.C.	O	Not used.

Pin No.	Signal Name	I/O	Function
70	T/E LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
71	SP/$\overline{\text{LP}}$	O	SP/LP switching signal. "L": LP.
72	ME/$\overline{\text{MP}}$ OUT	O	Recording current switching signal. "H": ME tape.
73	CAP PWM	O	Capstan error signal output. PWM signal.
74	DRUM PWM	O	Drum error signal output. PWM signal.
75	CFG HMS	I	Capstan FG signal input.
76	5.9M ATF CLK	O	Clock signal for ATF servo IC (IC508).
77	$\overline{\text{CS TO ATF}}$	O	Chip select signal for ATF servo IC.
78	DATA TO ATF	O	Serial data output to ATF servo IC.
79	$\overline{\text{ATF SCK}}$	O	Serial clock output to ATF servo IC.
80	ATF STBY	O	Standby signal for ATF servo IC.
81	SP/LP DET	I	Discriminates recording mode.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo.
84	N.C.		Not used. Connected to GND.
85	N.C.	I	
86	VSS		GND
87	VDD		Connected to SS3.6V.
88	VPP		
89	DRUM ACC	O	Drum motor acceleration signal.
90	DRUM BLK	O	Drum motor brake signal. Normally: "L".
91	N.C.		Not used. (open)
92	N.C.	O	
93	VIDEO IN/$\overline{\text{OUT}}$	O	Video input/output switching signal. "L": Video output.
94	AUDIO $\overline{\text{IN}}$/OUT	O	Audio input/output switching signal. "H": Audio output.
95	VA PB MODE	O	REC/PB switching signal of video; audio circuit. "H": PB.
96	VI SWP	O	RF switching pulse signal for video circuit.
97	RF SWP	O	RF switching pulse signal for REC/PB amp and audio circuit.
98	HEAD CHG	O	Head switching signal.
99	CAP ON	O	Capstan driver on/off control signal. "H": Capstan on.
100	CAP FWD/$\overline{\text{RVS}}$	O	Capstan rotation direction control signal. "H": FWD. "L": RVS.

6-5. MODE CONTROL MICRO PROCESSOR PIN FUNCTION (VS BOARD IC503: MB89098PFV-G-107-BND)

Note 1: CCD-TR570E
Note 2: CCD-TR750E
Note 3: Except CCD-TR650E
Note 4: CCD-TR750E E, Australian model

Pin No.	Signal Name	I/O	Function
1	TEST MODE 0	I	Connected to GND.
2	TEST MODE 1	I	Connected to GND.
3	X0	I	10 MHz clock oscillation circuit.
4	X1	O	
5	VSS		GND
6	$\overline{\text{RESET}}$	I	Reset input.
7	$\overline{\text{DATA SW}}$	I	Date (+) key (CK board S221) input. Normally "H". "L" when key is pressed.
8	$\overline{\text{TIME SW}}$	I	Time key (CK board S222) input. Normally "H". "L" when key is pressed.
9	$\overline{\text{EJECT SW}}$	I	Cassette eject switch (FK board S103) input. Normally "H". "L" when switch is pressed.
10	$\overline{\text{VTR MODE SW}}$	I	Power supply switch (CK board S223) input. "L" when power supply switch is at "Video".
11	$\overline{\text{AGE SW}}$	I	AGE switch input. "L" when key is pressed. Not used.
12	$\overline{\text{START/STOP SW}}$	I	Start/stop key (FK board S102) input. "L" when key is pressed.
13	$\overline{\text{CC DOWN SW}}$	I	CCDOWN switch (mechanism section) input. "L" when cassette compartment is locked.
14	$\overline{\text{CAM+STBY SW}}$	I	Power supply switch (CK board S223), stand-by switch (FK board S101) input. "L" when power supply switch is at "Camera" and stand-by switch at "Standby".
15	BATT IN	I	Main battery detection input. "H" when main battery is loaded or external power supply is connected.
16	PB V	I	System sync signal from mechanism control micro processor (VS board IC505).
17	RF SWP	I	RF switching pulse.
18	$\overline{\text{LANC POWER ON}}$	I	Power on signal input from wired remote commander. "L" when power switch of remote commander is pressed.
19	$\overline{\text{LI PRE END}}$	I	Lithium battery end detection input. "L" when lithium battery has worn out or has not been loaded.
20	$\overline{\text{EEPROM WE}}$	O	EEPROM (VS board IC502) writing enable signal. "L" when writing data.
21			Not used.
22			
23	$\overline{\text{TALLY LED}}$	O	Tally LED on/off signal.
24	$\overline{\text{SYSTEM RESET}}$	O	Reset signal of all systems. Normally "H". "L" when reset.
25	N.C.	O	Not used
26	BATT IN	I	
27	N.C.		Not used.
28	N.C.		
29	N.C.		
30	$\overline{\text{SIRCS SIG}}$	I	Infrared remote commander signal input.
31	N.C.		Not used.
32			
33	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (VS board IC502).
34	$\overline{\text{CS VIDEO}}$	O	Chip select signal to video IC (VS board IC201).
35	EVF DA STB	O	Chip select signal to EVR of COLOR EVF (VF board IC903) (Note 1).
36	$\overline{\text{CS SG}}$	O	Chip select signal to SYNC generator (VC board IC610).
37	CS DA	O	Strobe signal to DA (VS board IC951).
38	$\overline{\text{CS CAM}}$	O	Chip select signal to camera micro processor (VC board IC602).
39	N.C.	O	Not used.
40	N.C.	O	

Pin No.	Signal Name	I/O	Function
41	N.C.		Not used.
42	N.C.		
43	SEG19	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
44	SEG18	O	
45	SEG17	O	
46	SEG16	O	
47	VCC		+3.6V power supply (+3V power supply during backup).
48	SEG15	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
49	SEG14	O	
50	SEG13	O	
51	SEG12	O	
52	SEG11	O	
53	SEG10	O	
54	SEG09	O	
55	SEG08	O	
56			GND
57	SEG07	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
58	SEG06	O	
59	SEG05	O	
60	SEG04	O	
61	SEG03	O	
62	SEG02	O	
63	SEG01	O	
64	SEG00	O	
65	V3	I	3.6V LCD drive bias voltage. (Note 2)
66	V2	I	2.4V
67	V1	I	1.2V
68	V0	I	0V
69	COM0	O	LCD COM terminal drive signal. Pulse of 4 values (0V, 1.2V, 2.4V and 3.6V). (Note 2)
70	COM1	O	
71	COM2	O	
72	COM3	O	
73	$\overline{\text{CS OSD}}$	O	Chip select signal to character generator (VC board IC614).
74	$\overline{\text{CS MECHA}}$	O	Chip select signal to mechanism control micro processor (VS board IC505).
75	DATA TO MASTER	I	Serial data input signal.
76	DATA TO SLAVE	O	Serial data output signal.
77	$\overline{\text{MODECON SCK}}$	O	Serial data transfer clock.
78	N.C.	O	Not used.
79	VTR DD ON	O	VTR DC-DC converter control signal. "H" when power switch is at "Player/video" or "Camera".
80	CAM DD ON	O	CAMERA DC-DC converter control signal.
81	AVSS		A/D port GND.
82	K AD IN 0	I	Key input. A/D port. REC key (FK board S101, 106 (Note 4)) FF key (FK board S105) STOP key (FK board S104)
83	K AD IN 1	I	Key input. A/D port. PLAY key (FK board S111) REW key (FK board S110) PAUSE key (FK board S109)
84	K AD IN 2	I	Key input. A/D port. SET key (CK board S204) SELECT (–) key (CK board S203) SELECT (+) key (CK board S202) MENU key (CK board S201)
85	K AD IN 3	I	Key input. A/D port. FOCUS MANUAL key (CK board S211 (Note 2)) FADER key (CK board S208) BACK LIGHT/EXPOSURE key (CK board S207) PROGRAM AE key (CK board S205)
86	K AD IN 4	I	Key input. A/D port. STEADY SHOT key (CK board S211 (Note 3)) EDIT SEARCH (–) key (CK board) EDIT SEARCH (+) key (CK board) COUNTER RESET key (CK board)
87	N.C.		Not used.
88	N.C.		
89	N.C.		
90	AVCC		A/D port power supply (+3.6V).
91	BATT SENS	I	For main battery voltage input. (Voltage divided into 1/3.14 by R586, R587).
92	N.C.	I	Not used.
93	BRIGHA B	I	Brightness adjusting dial input. Pulse input by dial rotation. (Note 2).
94	BRIGHT B	I	Brightness adjusting dial input. Pulse input by dial rotation. (Note 2).
95	LANC IN	I	LANC serial data input.
96	LANC OUT	O	LANC serial data output.
97	BUZZER	O	Buzzer output.
98	VCC		+3.6V power supply.
99	CL1	O	32 kHz clock oscillation circuit (for clock).
100	CL0	I	

6-6. INTERFACE

6-6-1. System Control – Video/Audio Block Interface (VS BOARD)

NAME	I/O	No.	VTR MODE				CAMERA MODE	
			STOP	FF	REW	PB	STAND BY	REC
SP/$\overline{\text{LP}}$	O	IC505 (71)	H	H	H	*1	*8	*8
VA PB MODE	O	IC505 (95)	L	L	L	H	L	L
AUDIO MUTE	O	IC505 ㊻	L	L	L	L	L	L
VIDEO MUTE	O	IC505 ㊼	H	H	H	*7	L	L
CAM/$\overline{\text{LINE}}$	O	IC505 ㉖	L	L	L	L	H	H
JOG VD	O	IC505 ③	L	L	L	L	L	L
RP PB MODE	O	IC505 ①	H	H	H	H	H	L
$\overline{\text{FE ON}}$	O	IC505 ②	H	H	H	H	H	L
RF SWP	O	IC505 (97)	L	*2	*2	*2	*2	*2
JOG	O	IC505 ④	L	L	L	L	L	L
$\overline{\text{CS VIDEO}}$	O	IC505 ㉞	V period "L" pulse					
CS DA	O	IC505 ㊲	V period 'H" pulse					
DATA TO SLVE	O	IC503 (76)	V period pulse train					
$\overline{\text{MODECON SCK}}$	I	IC503 (77)	V period pulse train					
SP/$\overline{\text{LP}}$ DET	I	IC505 (81)	L	*3	*3	L	H	H
CLOG DET	I	IC505 (82)	L	*4	*4	*4	*4	H
VTR SYNC	I	IC505 (64)	L	*5	*5	*5	*5	*5
COMP REC	O	IC505 ㉕	L	L	L	L	L	L

*1. Outputs discrimination result of the playback tape.
"H" : SP mode, "L": LP mode.
*2. 25 Hz duty 50% pulse (synchronized with drum rotation)
*3. "H": SP recording area on tape. "L": LP recording area.
*4. "H": no recording area.
*5. Composite sync signal.
*7. "H" when tape no signal.
*8. By REC MODE switch in the menu system.
"H": SP mode, "L": LP mode.

6-6-2. System Control – Servo Block Interface

NAME	I/O	No.	VTR MODE				CAMERA MODE	
			STOP	FF	REW	PB	STAND BY	REC
T.REEL FG	I	IC505 (60)	–	*1	*1	*1	–	*1
S.REEL FG	I	IC505 (59)	–	*1	*1	*1	–	*1
ATF ERROR	I	IC505 (58)	–	*2	*2	*2	*2	*2
DRUM PG	I	IC505 (66)	–	*3	*3	*3	*3	*3
DRUM FG	I	IC505 (67)	–	*4	*4	*4	*4	*4
CAP FG/CFG HMS	I	IC505 (68), (75)	–	*5	*5	*5	*5	*5
CAP ON	O	IC505 (99)	L	H	H	H	L	H
REF PILOT	O	IC505 (83)	*7	*6	*6	*6	*6	*6
RP PB MODE	O	IC505 ①	H	H	H	H	H	L
DRUM RVS *9	O	IC505 ㉝	H	H	H	H	H	H
CAP FWD/$\overline{\text{RVS}}$	O	IC505 (100)	L	H	L	H	L	H
DRUM PWM	O	IC505 (74)	L	*8	*8	*8	*8	*8
CAP PWM	O	IC505 (73)	L	*8	*8	*8	L	*8
$\overline{\text{LM LIM CONT}}$ *10	O	IC505 ㉛	L	L	L	L	L	L
DRUM ON *11	O	IC505 ㉜	L	H	H	H	H	H
DRUM ACC	O	IC505 (89)	L	L	L	L	L	L
DRUM BRK	O	IC505 (90)	L	L	L	L	L	L

*1. Inputting waveform.
*2. ATF error voltage input.
*3. One PG pulse input.
*4. FG pulses input.
*5. FG pulses input.
*6. Four frequencies.
*7. f1 (101.0 kHz) or f3 (162.8 kHz) output
*8. PWM signal.
*9. Normally "H".
Temporary "L" when load (drum reverse rotation).
*10. Temporary "H" when cassette loading
(finger catch protection).
*11. "H": approx. 1.3 Vdc.

SECTION 7
ADJUSTMENTS

7-1. CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 7–25.

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Regulated power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Extension cable (42P, 0.8 mm)	J-6082-285-A	For extension between the VC board (CN601) and VS board (CN203)
	Extension cable (34P, 0.8 mm)	J-6082-286-A	For extension between the AU-165 board CN1302 and VS board (CN202), For CCD-TR570E/TR650E/TR750E
	Extension cable (12P, 0.8 mm)	J-6082-287-A	For extension between the PJ-61 board (CN1502) and VS board (CN204)
J-8	Extension cable (9P, 0.8 mm)	J-6082-288-A	For extension between the FK board and VS board (CN502)
	Extension cable (18P, 0.8 mm)	J-6082-289-A	For extension between the CK board and VS board (CN503)
J-9	Measuring pin tool for color electronic viewfinder	J-6082-192-A	For adjusting the color electronic viewfinder, For CCD-TR570E

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

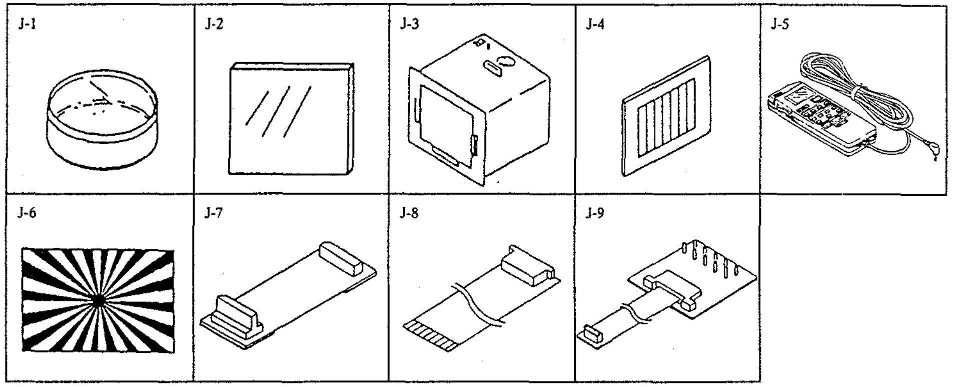


Fig. 7-1-1.

1-1-2. Preparations

Note 1: For further details of how to remove the cabinet and each board, refer to "2. Disassembly".

Note 2: When adjusting only, the lens block and VC board need not be taken apart.

1) Connect the equipments for adjusting as shown in Fig. 7-1-3.
2) The F panel block (MA board) is not required in adjustments. Remove the following connector.
   1. CN1301 of the AU board
3) If remove the cabinet (R) (Power switch, camera function switch and electronic view-finder), set to the camera power supply ON mode (Note 1), and disconnect the following connectors.
   1. CN503 of VS board
   2. CN206 of VS board
   3. CN101 of ZB board

   Be sure to exit this mode after completing the adjustment. (Note 2)
4) Turning OFF the Auto Focus Using the Adjusting Remote Commander
   1. Set data: 01 to page: 6, address: 25.
      (The auto focus will turn OFF. The focus can be adjusted using the focus button on the adjusting remote commander. But the HOLD switch must be set to OFF.)
   2. After completing the adjustment/operation check, set data: 00 to page: 6, address: 25.
5) Turning OFF the STEADY SHOT Function Using the Adjusting Remote Commander (EXCEPT CCD-TR650E)
   1. Set data: 02 to page: 6, address: 32.
   2. Set data: 01 to page: 6, address: 33.
      (The STEADY SHOT will go OFF.)
   3. After completing the adjustment/operation check, return the data of address: 32 and address: 33 of page: 6 to 00.

Note 1: Setting the Forced Camera Power Supply ON Mode
1) Set data: 01 to page: 1, address: 00.
2) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.

By carrying out the above, the camera can be operated even if the cabinet (R) has been removed. Be sure to exit the forced camera power ON mode after completing the adjustment.

Note 2: Exiting the Forced Camera Power Supply ON Mode
1) Set data: 01 to page: 1, address: 00.
2) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 1, address: 00.

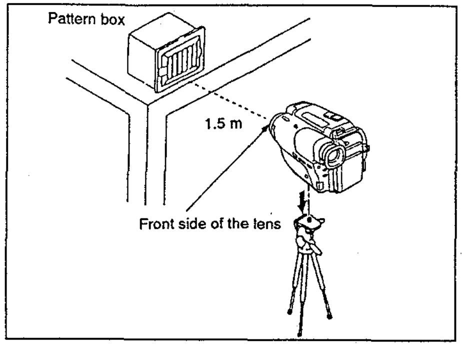


Fig. 7-1-2.

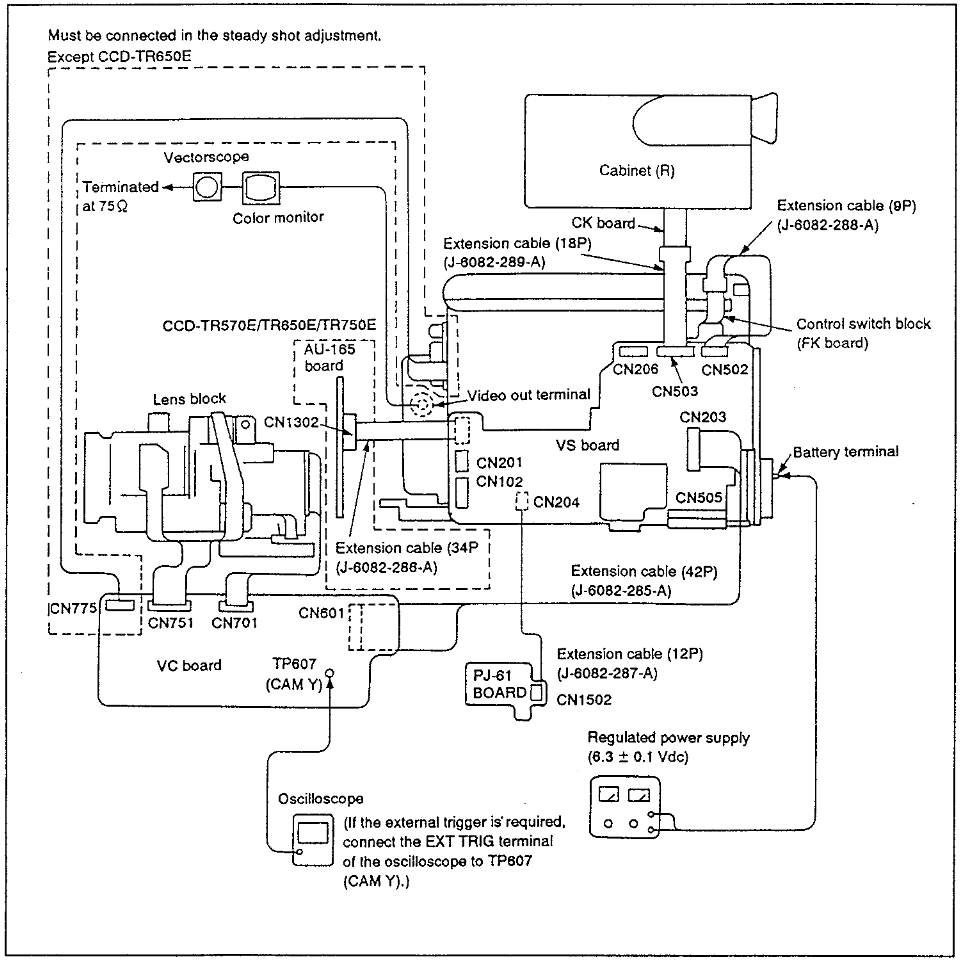

Must be connected in the steady shot adjustment.
Except CCD-TR650E
Vectorscope
Terminated at 75Ω
Color monitor
Cabinet (R)
CK board
Extension cable (18P)
(J-6082-289-A)
Extension cable (9P)
(J-6082-288-A)
Control switch block
(FK board)
CCD-TR570E/TR650E/TR750E
AU-165 board
Video out terminal
CN206
CN502
CN503
CN203
Lens block
CN1302
VS board
Battery terminal
CN201
CN102
CN204
CN505
Extension cable (34P)
(J-6082-286-A)
Extension cable (42P)
(J-6082-285-A)
CN775
CN751
CN701
CN601
VC board
TP607
(CAM Y)
PJ-61
BOARD
Extension cable (12P)
(J-6082-287-A)
CN1502
Regulated power supply
(6.3 ± 0.1 Vdc)
Oscilloscope
(If the external trigger is required, connect the EXT TRIG terminal of the oscilloscope to TP607 (CAM Y).)

Fig. 7-1-3.

1-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Camera/player power switch
   (control switch block (CK board))·························Camera
2. Standby switch (control switch block (FK board))··· Standby
3. PROGRAM AE button
   (control switch block (CK board))·····························Off
4. FOCUS switch (control switch block (CK board))····Manual
5. BACK LIGHT button
   (control switch block (CK board))·····························Off
6. STEADY SHOT button (control switch block (CK board))
   (EXCEPT CCD-TR650E)···Off

2. Adjusting Procedure

Adjust in the given order.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 7-1-4. if adjustments are performed using the color bar chart.
   (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and so that the white pattern will be displayed.
   Don't touch the zoom switch.

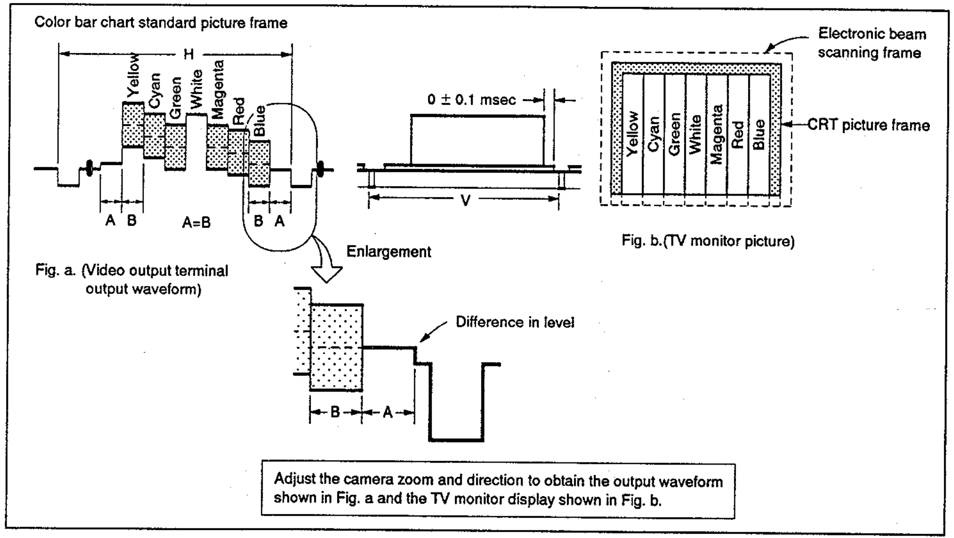

Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
0 ± 0.1 msec
V
Enlargement
Difference in level
B
A
Electronic beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. a. (Video output terminal output waveform)

Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 7-1-4.

3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm× 841 mm) paper to a black one, and make the chart shown in Fig. 7-1-5.

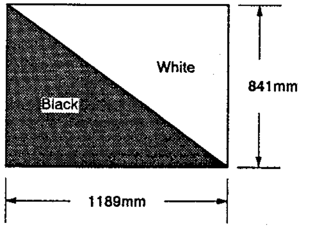

White
Black
841mm
1189mm

Fig. 7-1-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

1-1-4. Adjusting Remote Commander

The camera section is adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output voltage of the EVR IC (VC board IC603). This is controlled by the camera micro processor (VC board IC602), which reads the data written in the nonvolatile memory (VC board IC601: EEPROM), and transmits it to the digital signal processing circuit and EVR.

To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote terminal.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-1-6.

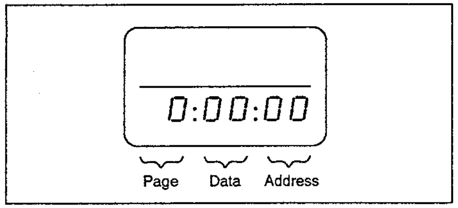


Fig. 7-1-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1-1.

   - Changing the address
     The address increases when the FF (▸▸) button is pressed, and decreases when the REW (◂◂) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory.
     (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01. Page F, and enables the camera section (Addresses 01 to BF of page F) to be adjusted.
5) After completing all adjustments, turn off the main power supply (6.3V) once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

1-1-5. Page F Address List

Note 1: The data already listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are values just after executing "Page F Data Initialization" and "Page F Data Modification". They are different from the values after executing all adjustments.

Note 3: In some cases, data have been input to the page F addresses C0 to FF. This has no relation to the adjustments.

Note 4: No mark : CCD-TR530E/TR550E/TR570E
( ) : CCD-TR650E
〈 〉 : CCD-TR750E

Note 5: No mark : CCD-TR530E/TR550E/TR570E/TR750E
( ) : CCD-TR650E

Address	Adjustment data	
	Initial value	Memo column
00 Note 4	5B (59) 〈57〉	5B (59) 〈57〉
01	01	01
02	00	00
03 Note 5	07 (00)	07 (00)
04	80	
05	80	
06	80	
07	80	
08	2D	
09	26	
0A	FA	
0B	F1	
0C	30	
0D	00	
0E	58	
0F	00	
10	E0	E0
11	8F	
12	6C	
13	36	
14	3C	
15	B6	
16	0D	
17	A3	
18	12	
19	8E	
1A	10	
1B	E2	
1C	0C	0C
1D	00	00
1E	80	
1F	80	
20 Note 5	79 (80)	79 (80)
21 Note 5	79 (80)	79 (80)
22	00	00
23	59	59
24	4C	4C
25	B5	B5
26	23	23
27 Note 5	3C (3A)	3C (3A)
28	A2	A2
29	0E	0E

Table 7-1-2 (1).

Address	Adjustment data	
	Initial value	Memo column
2A	2C	2C
2B	50	50
2C	FF	FF
2D	02	02
2E	16	16
2F	2B	2B
30	08	08
31	00	00
32	4A	4A
33	68	68
34	02	02
35	50	50
36	02	02
37 Note 5	00 (02)	00 (02)
38	76	76
39	6A	6A
3A	80	80
3B	20	20
3C	F0	F0
3D	02	02
3E	00	
3F	00	
40	00	
41	00	
42	00	
43	00	
44	00	
45	00	
46	00	
47	00	
48	00	
49	00	
4A	00	
4B	00	
4C	00	
4D	00	
4E	00	00
4F	20	20
50	32	32
51	02	02
52	66	66
53	18	18

Table 7-1-2 (2).

Address	Adjustment data	
	Initial value	Memo column
54	6B	6B
55	9F	9F
56	66	66
57	6C	6C
58	5C	5C
59	83	83
5A	67	67
5B	5C	5C
5C	5C	5C
5D	4A	4A
5E	20	20
5F	5C	5C
60	3C	3C
61	33	33
62	0C	0C
63	26	26
64	04	04
65	02	02
66	00	00
67	00	00
68	00	00
69	00	00
6A	00	00
6B	00	00
6C	00	00
6D	00	00
6E	00	00
6F	34	34
70	10	10
71	26	26
72	0F	0F
73	0F	0F
74	02	02
75	23	23
76	1B	1B
77	E0	E0
78	A0	A0
79	28	28
7A	0D	0D
7B	50	50
7C	58	58
7D	88	88

Table 7-1-2 (3).

Address	Adjustment data	
	Initial value	Memo column
7E	66	66
7F	46	46
80	8F	8F
81	13	13
82	30	30
83	60	60
84	70	70
85	80	80
86	A0	A0
87	C0	C0
88	70	70
89	78	78
8A	80	80
8B	90	90
8C	A0	A0
8D	40	40
8E	FF	FF
8F	00	00
90	00	00
91	77	77
92	00	00
93	FB	FB
94	02	02
95	32	32
96	6B	6B
97	8D	8D
98	A1	A1
99	30	30
9A	30	30
9B	21	21
9C	91	91
9D	72	72
9E	00	00
9F	00	00
A0	00	00
A1	00	00
A2	00	00
A3	00	00
A4	02	02
A5	80	80
A6	00	00
A7	80	80

Table 7-1-2 (4).

Address	Adjustment data	
	Initial value	Memo column
A8	00	00
A9	80	80
AA	00	00
AB	80	80
AC	00	00
AD	00	00
AE	02	02
AF	87	87
B0	39	39
B1	25	25
B2	39	39
B3	25	25
B4	E2	E2
B5	4A	4A
B6	00	00
B7	20	20
B8	00	00
B9	05	05
BA	00	00
BB	20	20
BC	00	00
BD Note 5	70 (6D)	70 (6D)
BE Note 5	35 (32)	35 (32)
BF	62	62
C0 to EF	Not used	Not used
F0		
F1		
F2		
F3		
F4		
F5		
F6		
F7		
F8		
F9		
FA		
FB		
FC		
FD		
FE		
FF		

Table 7-1-2 (5).

1-1-6. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 7-1-3. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	80	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① **B (b)**	176	177	178	179	180	180	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (b d).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 7-1-3.

1-2. CAMERA SYSTEM ADJUSTMENT

1. Power Supply Voltage Check (DD board)

Subject	Option
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ㉙ of CN901
Specified value	4.9 ± 0.1 Vdc
D3.6V check	
Measurement point	Pins ㉑ and ㉒ of CN901
Specified value	3.6 ± 0.1 Vdc
CAM 5V check	
Measurement point	Pins ㉕ and ㉖ of CN901
Specified value	4.85 ± 0.1 Vdc
CAM 15V check	
Measurement point	Pin ㉗ of CN901
Specified value	15 ± 0.3 Vdc
CAM –9V check	
Measurement point	Pin ㉛ of CN901
Specified value	$-8.5^{+0.25}_{-0.4}$ Vdc

Checking method:

1) Check that each power supply voltage satisfies the specified value.

2. Page F Data Initialization

Note: It is necessary to perform all adjustments of the camera section from the beginning again if the data of page F has been initialized.

Initializing method:

1) Page: 6, address: 00, data: 01
2) Check that the data of page: 6, address: 11 is 00.
3) Set data: 2F to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 6, address: 11 is 01.
5) Set data: 00 to page: 6, address: 01. and press the PAUSE button of the adjusting remote commander.
6) After performing "Page F data modification", perform all the adjustments of the camera section (page F).

3. Page F Data Modification 1

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to some camera micro processor versions. Change the data by manual input, and arrange it.

Note 1: When changing the data, to write the data to the non-volatile memory, press the PAUSE button of the adjusting remote commander every time the new data is set.

Note 2: When changing address: 00, set the data of page: 6, address: 00 to 80.

CCD-TR530E/TR550E/TR570E/TR750E

Address	Data
00 (SET ID)	5B [57]
20	79
21	79
27	3C
28	A2
2B	50
2F	2B
30	08
32	4A
3B	20
3D	02
50	32
77	E0
9C	91
A4	02
B1	25
B3	25
B4	E2
BD	70
BE	35
BF	62

[ ] : CCD-TR750E only

CCD-TR650E

Address	Data
00 (SET ID)	59
03	00
27	3A
28	A2
2B	50
2F	2B
30	08
32	4A
37	02
3B	20
3D	02
50	32
77	E0
9C	91
A4	02
B4	E2
BD	6D
BE	32
BF	62

[Distinguishing the Camera Micro Computer (IC602) Versions]

Each version can be distinguished by looking at the part name of the camera micro processor or the data of page: 6, address: 10.

Version	Part Name	Page: 6 Address: 10
Ver.1.0	SC424608	10

[Distinguishing the Steady Shot Control Micro Computer (IC777) Versions] (Except CCD-TR650E)

Each version can be distinguished by looking at the part name of the steady shot control micro processor or the data of page: 6, address: 30.

Version	Part Name	Page: 6 Address: 30
Ver.1.0	CXP87132-010R	01

4. 28 MHz Original Oscillation Adjustment (VC board)

Adjust the 28 MHz oscillation of the synchronization clock.
If the oscillation is not 28 MHz, the period will be inaccurate or the image will not be in color.

Subject	Not required
Measurement Point	TP709 (CL)
Measuring Instrument	Frequency counter
Adjusting Element	CT701
Specified Value	14187500 ± 70 Hz

Adjusting method:

1) Use CT701 to adjust the oscillation frequency to 14187500 ± 70 Hz.

5. V SUB Adjustment

Set the CCD imager V SUB voltage to the voltage specified for the imager.

Subject	Not required
Adjustment Page	F
Adjustment Address	04

Adjusting Method:

1) Read the V SUB voltage code of the CCD imager.
   Obtain the corresponding V SUB data from the following table.
2) Page: 6, address: 00, data: 01
3) Set the V SUB data to page: F, address: 04.
4) Press the PAUSE button of the adjusting remote commander.

V SUB			V SUB		
Voltage Code	Data	Voltagee (Vdc) *1	Voltage Code	Data	Voltagee (Vdc) *1
e	6F	9.0	g	AD	14.0
f	75	9.5	r	B3	14.5
g	7B	10.0	s	B9	15.0
h	82	10.5	t	C0	15.5
j	88	11.0	u	C6	16.0
k	8E	11.5	v	CC	16.5
l	94	12.0	w	D2	17.0
m	9A	12.5	x	D8	17.5
n	A1	13.0	y	DF	18.0
p	A7	13.5	z	E5	18.5

*1: The V SUB voltages (TP703) given are reference values.

6. VRG Adjustment

Set the CCD imager V RG voltage to the voltage specified for the imager.

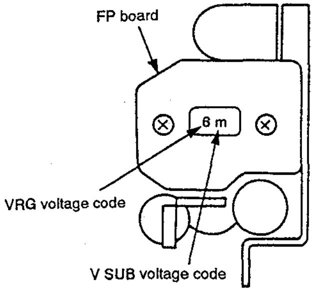
Subject	Not required
Adjustment Page	F
Adjustment Address	05

Adjusting Method:

1) Read the VRG voltage code of the CCD imager.
   Obtain the corresponding VRG data from the following table.
2) Page: 6, address: 00, data: 01
3) Set the VRG data to page: F, address: 05.
4) Press the PAUSE button of the adjusting remote commander.

VRG		
Voltage Code	Data	Voltage (Vdc) *2
1	33	1.0
2	4E	1.5
3	69	2.0
4	84	2.5
5	9F	3.0
6	BA	3.5
7	D5	4.0

*2: The VRG voltages (TP707) given are reference values.



(Example) When "6m" is displayed:
The V SUB voltage code is "m" and therefore the V SUB data will be "9A".
The VRG voltage code is "6" and therefore the VRG data will be "BA".

Fig. 7-1-7.

7. Flange Back Adjustment

The flange back adjustment for the inner focus lens is performed automatically.

Subject	Chart for flange back adjustment (2000 ± 5 mm from the front side of the lens Luminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	16, 17, 18, 19, 1A, 1B

Adjusting method:

1) Check that the flange back adjustment chart center and the exposure display center coincide at both zoom lens TELE end and WIDE end.
2) Page: 6, address: 00, data: 01
3) Check that the data of page: 6, address: 21 is 00.
4) Check that the page: F, address: 16 to 1B data is at the initial value. (Refer to Table 7-1-2. "Page F address list")
5) Set data: 13 to page: 6, address: 01 and press the PAUSE button of the adjusting remote commander.
6) Set data: 15 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
   (The adjustment data is automatically input to page: F, addresses: 16 to 1B.)
7) Check that the data of page: 6, address: 21 is 01.
   (Display indicating flange back adjustment completion)

Processing after completing adjustments

1) Turn off the main power supply (6.3V).

8. Flange Back Check

Subject	Siemens star (2m from the front of the lens)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Checking method:

1) Place the Siemens star 2m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appears on the image.
3) Shoot the siemens star with the zoom TELE end.
4) Turn ON the auto focus.
5) When the lens is focused, turn OFF the auto focus. (Note 2)
6) Shoot the siemens star with the zoom WIDE end.
7) Check that the lens is focused.

Note 1: Input the following data for CCD-TR530E/TR550E/TR570E/TR750E.
1) Set data: 02 to page: 6, address: 32.
2) Set data: 01 to page: 6, address: 33.

Note 2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on page A of the adjusting remote commander.
1) Set data: 0C to page: 6, address: 02.
2) Page A shows the state of the focus.

$$A : 00 : \underline{XX} \longrightarrow \left(\begin{array}{ll}\text{Odd:} & \text{Focused}\\ \text{Even:} & \text{Unfocused}\end{array}\right.$$

Processing after compleating adjustments

1) Set data: 00 to page: 6, address: 02.

For CCD-TR530E/TR550E/TR570E/TR750E

2) Set data: 00 to page: 6, address: 32.
3) Set data: 00 to page: 6, address: 33.

9. HALL Adjustment

To eliminate the differences in the outputs of the hall element attached to the iris for detecting the position of the lens iris, adjust the hall AMP gain and hall offset.

Subject	Not required
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	06, 07
Specified Value	32 to 36 during IRIS OPEN B4 to B8 during IRIS CLOSE

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Page: 1, address: 00, data: 01
3) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
4) Set data: 03 to page: 6, address: 02.
5) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 80 to page: F, address: 07, and press the PAUSE button of the adjusting remote commander.
7) Set data: 40 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
8) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and set to W_2.
9) Set data: 30 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
10) Read the DDS display data, and set to W_1.
11) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data, and set to K_1.
13) Set data: 40 to page: F, address: 06, and press the PAUSE button.
14) Read the DDS display data, and set to K_2.
15) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 7-1-3. "Hexadecimal notation-decimal notation conversion table".)
16) Calculate X_1' using the following equations (decimal notation calculation).

$$A' = W_2' + K_1' - W_1' - K_2' \cdots\cdots \text{Equation 1}$$

$$B' = W_1' - K_1' \cdots\cdots \text{Equation 2}$$

$$X1' = \frac{2080 + (48 \times A') - (16 \times B')}{A'} \cdots\cdots \text{Equation 3}$$

17) Convert X_1' to hexadecimal notation, and obtain X_1.
    (Round off to one decimal place)
18) Set data: X_1 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
19) Change the data of page: F, address: 07, and adjust the DDS display data to "34".
20) Press the PAUSE button of the adjusting remote commander.
21) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
22) Read the DDS display data, and set to W_0. If W_0 lies within the "B4" to "B8" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
23) Convert W_0 to hexadecimal notation, and obtain W_0'.
24) Calculate X_2' using the following equations (decimal notation calculation).

$$C' = W_0' - B' - 52 \cdots\cdots \text{Equation 4}$$

$$X_2' = \frac{(130 - B') \times (X_1' - 48) + 48 \times C'}{C'} \cdots\cdots \text{Equation 5}$$

    (X_1' and B' are values obtained from equations 2 and3)
25) Convert X_2' to hexadecimal notation and obtain X_2.
    (Round off to one decimal place)
26) Set data X_2 to page: F, address: 06, and press the PAUSE button of the adjusting remote commander.
27) Change the data of page: F, address: 07, and adjust the DDS display data to "B6".
28) Press the PAUSE button of the adjusting remote commander.
29) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
30) Check that the DDS display data lies within the "32" to "36" range.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Page D protect mode setting.
   Page: 1, address: 00, data: 00

10. SYNC Level Check (VC board)

Subject	Not required
Measurement Point	TP607
Measuring Instrument	Oscilloscope
Specified Value	A=150 ± 10 mV

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the SYNC level (A) satisfies the specified value.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

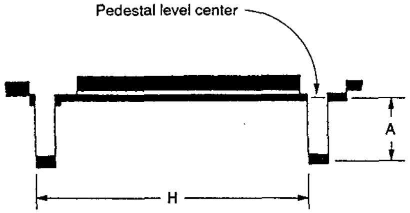


Fig. 7-1-8.

11. BURST Level Check (VC board)

Subject	Not required
Measurement Point	TP609
Measuring Instrument	Oscilloscope
Specified Value	A=150 ± 15 mVp-p

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the Burst level (A) satisfies the specified value.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

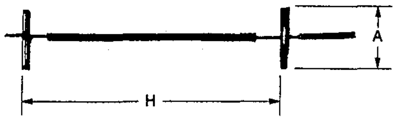


Fig. 7-1-9.

12. Picture Frame Setting

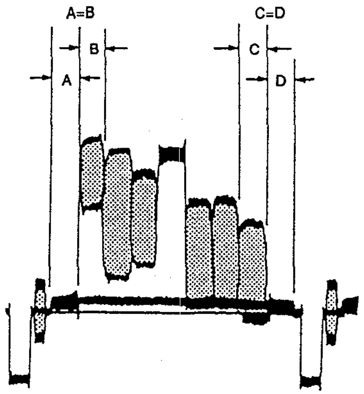
Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec

Setting method:

1) Turn the auto focus off.
2) Adjust the focus.
3) Adjust the zoom and the camera direction, and set to the specified position.
4) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame".

Check on the oscilloscope

1. horizontal period



2. Vertical period

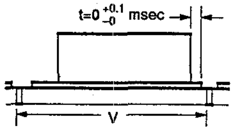


Fig. 7-1-10.

Check on the TV monitor

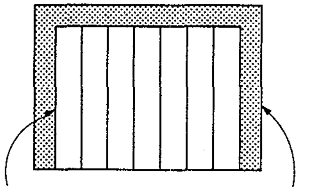


Fig. 7-1-11.

13. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that the proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	08, 09, 0A, 0B
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 00 to page: 6, address: 03.
3) Set data: F1 to page: F, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of addresses 08, 09, 0A and 0B of page: F, and settle each color luminance point in each color reproduction frame.
   Note 1: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses.
   If not, the new data will not be written to the memory.
6) Press the PAUSE button of the adjusting remote commander.

Processing after completing adjustments

1) Set data: E0 to page: F, address: 10 and press the PAUSE button of the adjusting remote commander.
2) Set data: 10 to page: 6, address: 03.

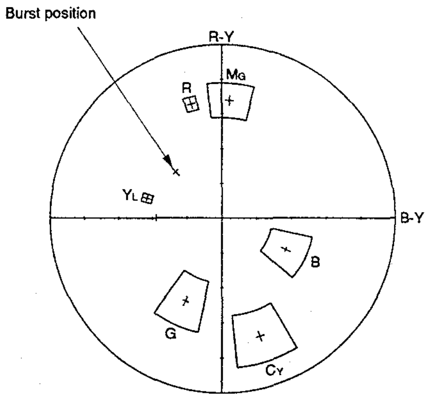


Fig. 7-1-12.

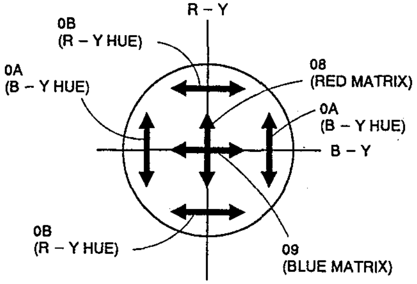


Fig. 7-1-13. Direction of the Movements of the Adjustment Address and Luminance Point

14. IRIS IN/OUT Adjustment (VC board)

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.
If the level is not correct, the white balance will not be accurate.

Subject	White pattern
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	13, 14

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Page: 1, address: 00, data: 01
3) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
4) Set data: 0E to page: 6, address: 02.
5) Set data: 0B to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS display data (Note 1), and take the upper two digits as D_1 and the lower two as D_2.
7) Convert D_1 to a decimal number and obtain D_1'. (Refer to Table 7-1-3. "Hexadecimal Notation-Decimal Notation Conversion Table".)
8) Calculate D_3' using the following equations. (Equations 1 and 2 are for decimal notation calculation)
   When $D_2 \geqq D0$
   $D_3'=D_1'-21$ ··································Equation 1
   When $D_2 < D0$
   $D_3'=D_1'-22$ ··································Equation 2
9) Convert D_3' to a hexadecimal number and obtain D_3.
10) Set D_3 to page: F, address: 13, and press the PAUSE button of the adjusting remote commander.
11) Set data: 09 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data (Note 1), and take the upper two digits as D_4 and the lower two as D_5.
13) Convert D_4 to a decimal number and obtain D_4'. (Refer to Table 7-1-3. "Hexadecimal Notation-Decimal Notation Conversion Table".)
14) Calculate D_6' using the following equations. (Equations 3 and 4 are for decimal notation calculation)
   When $D_5 \geqq F0$
   $D_6'=D_4'-13$ ···Equation 3
   When $D_5 < F0$
   $D_6'=D_4'-14$ ···Equation 4
15) Convert D_6' to a hexadecimal number and obtain D_6.
16) Set D_6 to page: F, address: 14, and press the PAUSE button of the adjusting remote commander.

Note 1: The right four digits of the display data at the right bottom side of the EVF and monitor TV is the LIGHT LEVEL data. If the lower digits change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the average value.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 1, address: 00.
3) Set data: 00 to page: 6, address: 00, and press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 6, address: 02.

15. MAX GAIN Adjustment (VC board)

Correct the differences in the minimum illuminance.
If the illuminance is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	White pattern standard picture frame
Measurement Point	TP607 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	15
Specified Value	CCD-TR530E/TR550E/TR570E/ TR750E A=175 ± 10 mV CCD-TR650E A=210 ± 10 mV

Adjusting method:

1) Page: 6, address: 00, data: 01
2) Set data: 19 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 15, and adjust so that the Y OUT signal level (A) becomes the specified value.
   Note: The data of address: 15 should be 70 to FF.
4) Press the PAUSE button of the adjusting remote commander.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

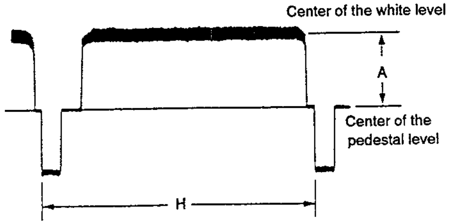


Fig. 7-1-14.

16. Auto White Balance Standard Data Input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	0C, 0D, 0E, 0F

Adjusting method:

1) Turn the power of the unit OFF/ON.
2) Page: 6, address: 00, data: 01
3) Check that the data of page: 6, address: 11 is 00.
4) Wait for 2 seconds.
5) Set data: 11 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 0D to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
   (When the standard data is taken in, the data will be automatically input to addresses 0C to 0F of page F.)
7) Check that the data of page: 6, address: 11 is 01.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.

17. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	11 (NORM R) 12 (NORM B)
Specified Value	CCD-TR650E R ratio: 2A40 to 2AC0 B ratio: 5E00 to 5F00 CCD-TR530E/TR550E/TR570E/TR750E R ratio: 2B40 to 2BC0 B ratio: 5E00 to 5F00

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Page: 1, address: 00, data: 01
3) Set data: 21 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
4) Page: 6, address: 00, data: 01
5) Set data: D0 to page: F, address: 10, and press the PAUSE button of the adjusting remote commander.
6) Set data: 04 to page: 6, address: 02.
7) Change the data of page: F, address: 11, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to the R ratio specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 05 to page: 6, address: 02.
10) Change the data of page: F, address: 12, and adjust the average value of the DDS display data to the B ratio specified value.
11) Press the PAUSE button of the adjusting remote commander.

Processing after completing adjustments

1) Set data: 00 to page: F, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 6, address: 02.
4) Page D protect mode setting.
   Page: 1, address: 00, data: 00

18. White Balance Check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-1-15. A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Page: 6, address: 00, data: 01
3) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the center of the white luminance point is within the circle shown in Fig. 7-1-15.A.
5) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 23 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Place the C14 filter on the lens.
8) Check that the center of the white luminance point settles in the circle shown in Fig. 7-1-15. B.
9) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
10) Check that the center of the white luminance point settles in the circle shown in Fig. 7-1-15. C.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 6, address: 00, and press the PAUSE button.

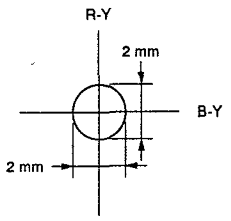


Fig. 7-1-15. A

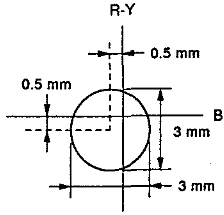


Fig. 7-1-15. B

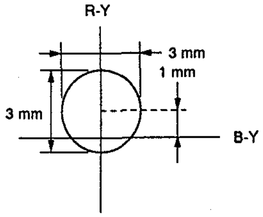


Fig. 7-1-15. C

19. VIDEO OUT Level Check

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal (Terminated at 75 Ω)
Measuring Instrument	Oscilloscope
Specified Value	Y level=660 ± 40 mV SYNC level=300 ± 20 mV BURST level=300 ± 20 mV

Checking method:

1) Check that the Y level, SYNC level and BURST level satisfy the specified values.

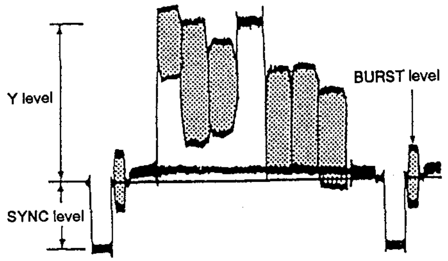


Fig. 7-1-16.

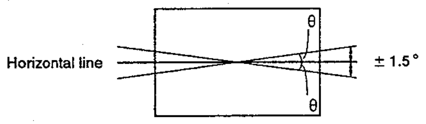
1-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS (VF-65 BOARD)

1-3-1. Horizontal Slant Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Specified Value	± 1.5°

Adjusting method:

1) Adjust RV904 (BRIGHT) so that the CRT can be seen easily and clearly.
2) Loosen the DY (deflection yoke) tightening screw.
3) Rotate DY, and adjust the image so that it is horizontal.
4) Tighten the DY tightening nut.
   (Do not tighten it too tightly.)



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 7-1-17.

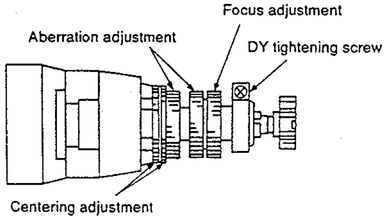


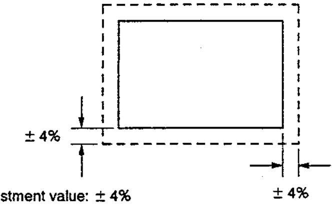
Fig. 7-1-18.

1-3-2. Centering Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Specified Value	± 4%

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 7-1-18.)
   Note: As the centering position changes due to earth magnetism, rotate it 360 ° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value: ± 4%

Fig. 7-1-19.

1-3-3. Focus Adjustment

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 7-1-18.)

1-3-4. Aberration Adjustment

Model	E-E
Signal	Dot pattern
Specified Value	T < 2 • D, F < D

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot becomes less than twice the diameter of the dot, or the fan aberration becomes less than the diameter of the dot.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

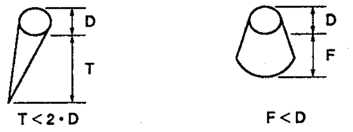


Fig. 7-1-20.

1-3-5. Horizontal Amplitude Adjustment (VF-65 board)

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Adjusting Element	C909
Specified Value	6 ± 2%

Adjusting method:

1) Rotate RV903, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2) Rotate RV904 so that the brightness is the normal level.
3) Adjust the pattern (A) of the H size adjustment capacitor (C909) to "short" or "open", so that the horizontal direction over scan becomes 6 ± 2% (Left and right totals). (Refer to Fig. 7-1-22.)

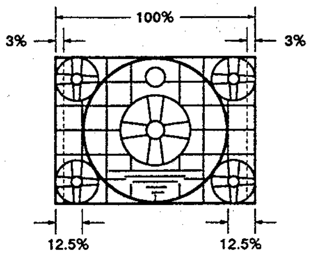
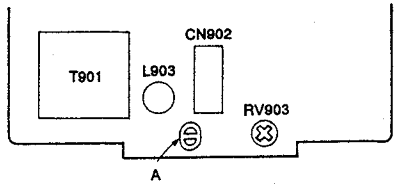


Fig. 7-1-21.



VF-65 board (Component side)

Section A	Size H
Open	Small
Short	Big

Fig. 7-1-22.

1-3-6. Vertical Amplitude Adjustment (VF-65 board)

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Adjusting Element	RV903
Specified Value	5 ± 2%

Adjusting method:

1) Adjust RV903 so that the vertical direction over scan becomes 5 ± 2% (Top and bottom totals).

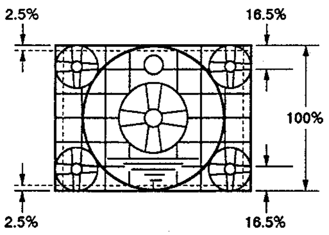


Fig. 7-1-23.

1-3-7. Brightness Adjustment (VF-65 board)

Model	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP) Monoscope section
Adjusting Element	RV904

Adjusting method:

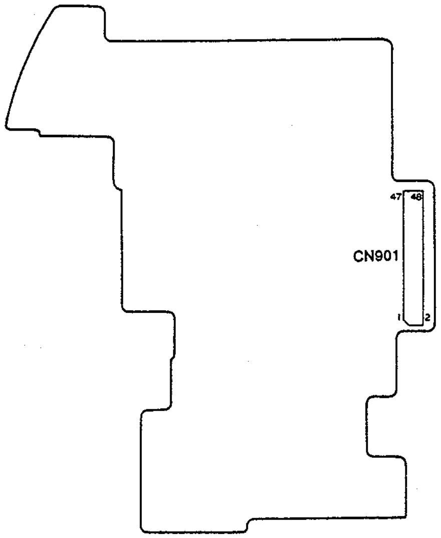
1) Rotate RV904, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section and the second darkest section of the gray scale cannot be differentiated.)

1-3-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

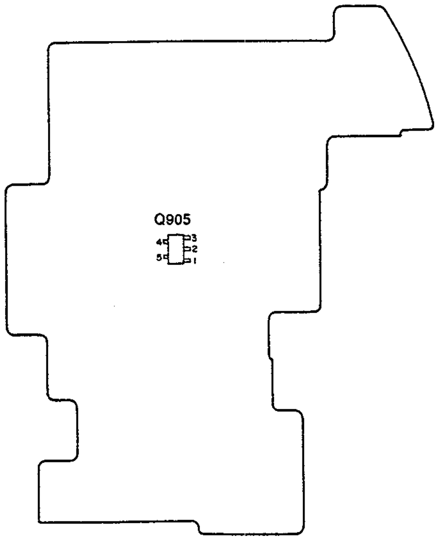
"1-3-5. Horizontal Amplitude Adjustment" and "1-3-6. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform [1-3-7. Brightness, Contrast Adjustments] again. Moreover, check the focus, and if it found to be vague, perform "1-3-3. Focus Adjustment" and "1-3-4. Aberration Adjustment".

1-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

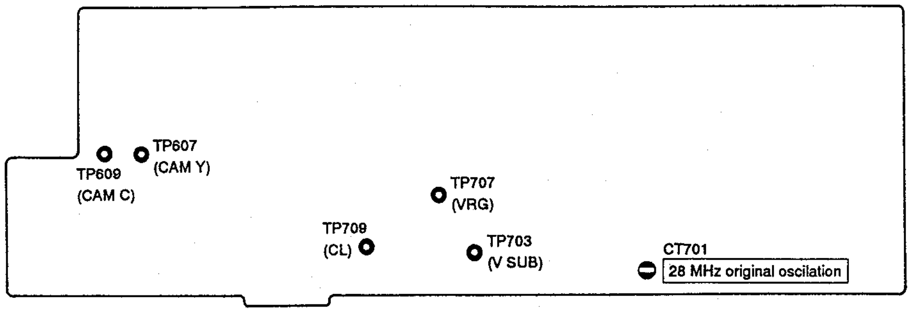
DD BOARD (CONDUCTOR SIDE)


CN901
47
48
1
2

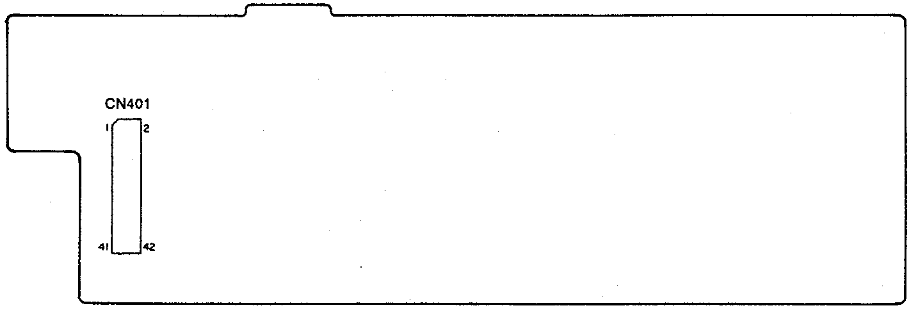
DD BOARD (COMPONENT SIDE)



VC BOARD (COMPONENT SIDE)

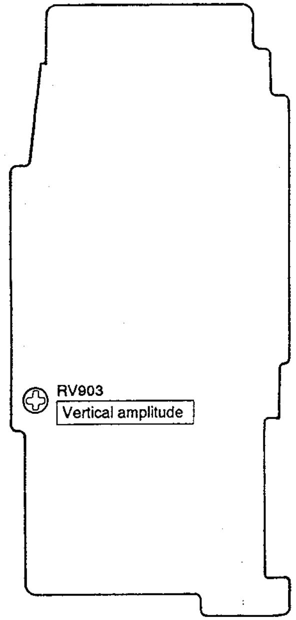

TP607
(CAM Y)
TP609
(CAM C)
TP707
(VRG)
TP709
(CL)
TP703
(V SUB)
CT701
28 MHz original oscilation

VC BOARD (COMPONENT SIDE)

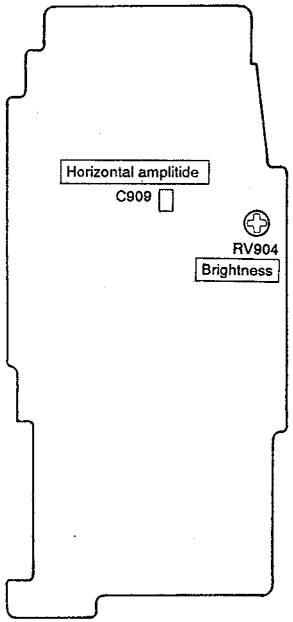

CN401
1
2
41
42

CCD-TR530E/TR550E/TR650E/TR750E

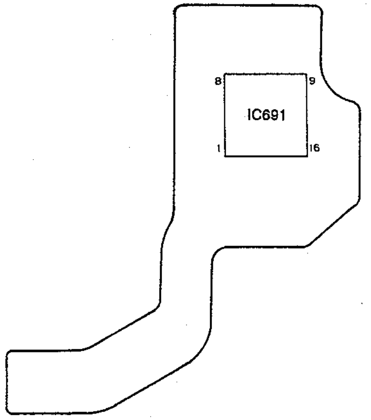
VF-65 BOARD (COMPONENT SIDE)


RV903
Vertical amplitude

VF-65 BOARD (CONDUCTOR SIDE)


Horizontal amplitide
C909
RV904
Brightness

FP-89 BOARD


IC691
8
9
1
16

7-2. MECHANICAL SECTION ADJUSTMENTS

Mechanism Parts Adjustments

For details on the adjustments and checks of mechanical section and replacements of mechanism parts, refer to the separate volume-"8 mm Video Mechanism Adjustment Manual IV A Mechanism ".

2-1. OPERATING WITHOUT A CASSETTE

1) Refer to "2. DISASSEMBLY" and supply the power with the cabinet removed. (So that the mechanical deck can be operated.)
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Set data: 01 to page: 1, address: 00.
   (Release of the protect)
6) Set data: 01 to page: D, address: 02, and press the PAUSE button of the adjusting remote commander.
   (Emergency prohibition mode setting)
7) Set data: 04 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
   (Sensor ineffective mode setting)

By carrying out the above procedure, the unit can be operated without loading a cassette.
Be sure to carry out "Processing after Operations" after checking the operations.
Set the data of page: D, address: 03 to the following if the sensor ineffective mode, forced VTR power supply ON mode or forced camera power supply ON mode are to be used together.

Forced VTR power supply ON mode·········06
Forced camera power supply ON mode······05

[Processing after Operations]

1) Set data: 01 to page: 1, address: 00.
   (Release of protect)
2) Set data: 00 to page D, address: 02, and press the PAUSE button of the adjusting remote commander.
   (Release of the emergency prohibition mode)
3) Set data: 00 to page: D, address: 03, and press the PAUSE button of the adjusting remote commander.
   (Release of the sensor ineffective mode)
4) Set data: 00 to page: 1, address: 00.
   (Protect setting)
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments

1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 1, address: 00, and set data: 01.
   (Release of the protect)
5) Select page: D, address: 01, and set data: 03.
   (Set the track shift mode. The adjusting remote commander can be disconnected if its PAUSE button of remote commander is pressed. In this case, be sure to perform "Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
   Channel 1-Pin ③ of CN102 of VS board
   External trigger-Pin ④ of CN102 of VS board
   (Connect the oscilloscope via the measuring pin tool for the video section (J-6082-140-A).)
7) Playback the alignment tape (WR5-1CP) for tracking.
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
   If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment Manual IV (A Mechanism).
9) Perform "Processing after operations", after completing adjustments.

CN102 of VS board

1	PB ´CH RF
2	PB PCM RF
3	PB RF
4	RF SWP
5	RP GND
6	REC 2

(Processing after operations)

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 1, address: 00, and set data: 01.
3) Select page: D, address: 02, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Remove the power supply from the unit.

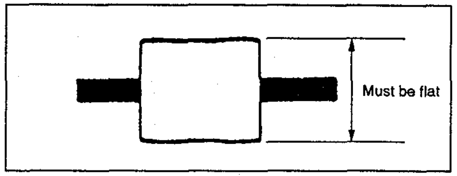


Fig. 7-2-1.

7-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 7–88.

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

3-1-1. Equipments to be Used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1CP)
      Part Code: 8-967-995-07
    - For Hi8 mode video frequency characteristics adjustment (WR5-7CE)
      Part Code: 8-967-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Part Code: 8-967-995-47
      Or (WR5-4CSP)
      Part Code: 8-967-995-46
      For LP (WR5-4CL)
      Part Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Part Code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Part Code: 8-967-995-48
      For LP (WR5-8CLE)
      Part Code: 8-967-995-57
12) remote commander for adjustment (J-6082-053-A)
13) VC board extension cord (42P, 0.8 mm)
    Part Code: J-6082-285-A
14) Control switch Block (FK board) extension cord (9P, 0.8 mm)
    Part Code: J-6082-288-A
15) Control switch Block (CK board) extension cord (18P, 0.8 mm)
    Part Code: J-6082-289-A
16) AU-165 board extension cord (34P, 0.8 mm) (CCD-TR570E/TR650E/TR750E)
    Part Code: J-6082-286-A
17) PJ-61 board extension cord (12P, 0.8 mm)
    Part Code: J-6082-287-A

3-1-2. Adjusting Precautions

1) The adjustment for this unit is performed using the VIDEO input (VIDEO terminal input) or the camera input. The camera input can be used for video adjustments only. Use the VIDEO input for the other adjustments.
   When using the VIDEO input, set the power supply switch to "PLAYER" or set the "forcible VTR power supply ON mode" using the adjusting remote commander. (Note 1).
   When using the camera input, set the power supply switch to "CAMERA" or set the "Forcible camera+VTR power supply ON mode" using the adjusting remote commander (Note 2).
   After completing adjustments, be sure to exit the "forcible VTR power supply ON mode" or "forcible camera+VTR power supply ON mode" (Note 3).
2) The F panel block (MA board) is not used for video adjustments. Disconnect the following connectors in these adjustments.
   1. CN1301 of the AU board
3) The view finder (VF board) is not used for video adjustments. Disconnect the following connector in these adjustments.
   1. CN206 of the VS board (4P, 0.5 mm)
4) The cabinet (R) (CK board: Power supply switch, camera function switch) need not be connected if the "forcible VTR power supply ON mode" or "forcible camera+VTR power supply ON mode" is set. In this case, disconnect the following connectors.
   1. CN503 of the VS board (18P, 0.8 mm)
   2. CN101 of the ZB board (4P, 0.8 mm)
   3. CN501 of the VS board (24P, 0.8 mm) (CCD-TR750E)
   However, as disconnecting these connectors means disconnecting the 3V lithium power supply, data set by the user such as the date, time, and menu will be lost. After completing the adjustments, set these data again, and be sure to exit the "forcible VTR power supply ON mode" or "forcible camera+VTR power supply ON mode". (Note 3)
   When connecting the cabinet (R) using the extension cord, use the following type.
   1. J-6080-289-A (18P, 0.8 mm)

5) The lens block and VC board are not used for video adjustments. Disconnect the following connectors in these adjustments.
   1. CN203 of the VS board (42P, 0.8 mm)
   2. CN775 of the VC board (8P, 0.8 mm) (Except CCD-TR650E)
   Connect the following when removing the VC board.
   1. Connect Pin ㉒ (REG H) and Pin ⑦ (D3.6V) of CN203 of the VS board with a jumper wire.
   When connecting the VC board using the extension cord, use the following type.
   1. J-6080-285-A (42P, 0.8 mm)
6) The audio board (AU board) is required only for audio adjustments. When not using it, disconnect the following connector.
   1. CN202 of the VS board
   When connecting the AU-165 board (CCD-TR570E/TR650E/TR750E) using the extension cord, use the following type.
   1. J-6080-286-A (34P, 0.8 mm)
7) When opening the VS board, disconnect the following connectors.
   1. CN502 of the VS board (9P, 0.8 mm)
   The VTR function keys will not work. Use the remote commander to perform operations other than EJECT.
   When connecting the FK board and CN502 of VS board using the extension cord, use the following type.
   1. J-6080-288-A (9P, 0.8 mm)
   When connecting the CN1502 of PJ-61 board and CN204 of VS board using the extension cord, use the following type.
   1. J-6080-287-A (12P, 0.8 mm)

Note 1: Setting the "forcible VTR power supply ON mode (VIDEO input mode)"
1) Set data: 01 to page: 1, address: 00. (Releasing the page D protect)
2) Set data: 02 to page: D, address: 03 and press the PAUSE button of the adjusting remote commander. (Setting the forcible VTR power supply ON mode)

By performing the above, the VTR can be operated with the cabinet (R) removed. After completing adjustments, be sure to exit the "forcible power supply ON mode".

Note 2: Setting the "forcible camera+VTR power supply ON mode (camera input mode)"
1) Set data: 01 to page: 1, address: 00. (Releasing the page D protect)
2) Set data: 03 to page: D, address: 03 and press the PAUSE button of the adjusting remote commander. (Setting the forcible camera+VTR power supply ON mode)

By performing the above, the VTR can be operated with the cabinet (R) removed. After completing adjustments, be sure to exit the "forcible power supply ON mode".

Note 3: Exiting the "forcible power supply ON mode"
1) Set data: 01 to page: 1, address: 00. (Releasing the page D protect)
2) Set data: 00 to page: D, address: 03 and press the PAUSE button of the adjusting remote commander. (Setting the forcible power supply ON mode)
3) Set data: 00 to page: 1, address: 00. (Setting the page D protect)

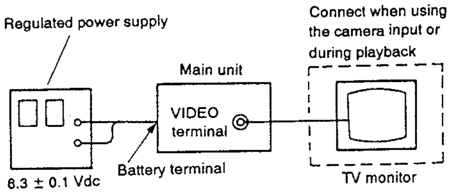
3-1-3. Connecting the Equipments

Connect the measuring instruments as shown in Fig. 7-3-1. according to the input terminal specifications (VIDEO input or CAMERA input), and perform the adjustments.
The input terminal is specified in the ( ) in the signal column. Either input terminal can be used when there are no specifications.

Note 1: If the VIDEO input is used for the adjustments which specify for the CAMERA input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications.

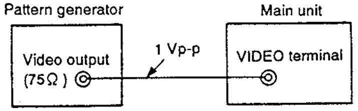
Note 2: When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by VTR. It is recommendet that a pattern generator with a Y/C separation output terminal be used as much as possible.

Connecting the TV monitor and requlated power supply


Regulated power supply
Connect when using the camera input or during playback
Main unit
VIDEO terminal
Battery terminal
6.3 ± 0.1 Vdc
TV monitor

Connecting the pattern generator

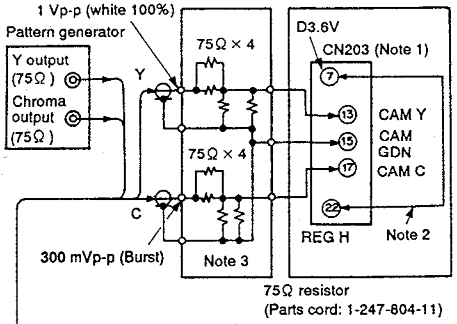
[VIDEO Input]
Set the power supply switch to "PLAYER" or set the "forcible VTR power supply ON mode" using the adjusting remote commander.


Pattern generator
Main unit
Video output (75Ω)
1 Vp-p
VIDEO terminal

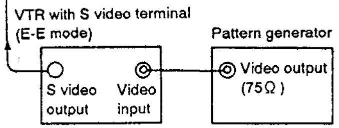
Note: The TV monitor cannot be connected.
Use the view finder to monitor.

[CAMERA Input]
Set the power supply switch to "CAMERA" or set the "forcible camera+VTR power supply ON mode" using the adjusting remote commander.

- When the pattern generator has a Y/C separation output terminal


VS board
1 Vp-p (white 100%)
Pattern generator
Y output (75Ω)
Chroma output (75Ω)
Y
C
75Ω × 4
75Ω × 4
D3.6V
CN203 (Note 1)
7
13
15
17
22
CAM Y
CAM GDN
CAM C
REG H
Note 2
Note 3
300 mVp-p (Burst)
75Ω resistor
(Parts cord: 1-247-804-11)

- When the pattern generator has no Y/C separation output terminal


VTR with S video terminal
(E-E mode)
Pattern generator
S video output
Video input
Video output (75Ω)

Note 1: Remove the VC board.
Note 2: Connect Pins ⑦ and ㉒ of CN203 with the jumper wire.
Note 3: The chroma signal input is not required for some adjustments.

Fig. 7-3-1.

3-1-4. How to Set the REC Mode In the Model with out REC switch (Except CCD-TR750E E, Australian model)

1) REC key forbidden accept mode cancel
   1. Connect the adjusting remote commander to the remote terminal.
   2. Turn on the power.
   3. Turn on the HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 17, and set the data to 16 [17].$^{\text{Note 1}}$ (REC key forbidden accept mode cancel)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

The REC key is accepted through the above procedure.

2) REC mode setting
   1. Turn off the HOLD switch of the adjusting remote command-er.
   2. Press REC buttons of the adjusting remote commander.
   3. Perform "3. Procedure after completed the adjustment", after completing adjustment.

3) Procedure after completed the adjustment
   Be sure to return the mode to REC key forbidden accept mode after adjustment.
   1. Connect the adjusting remoter controller.
   2. Turn on the power.
   3. Turn on HOLD switch of the adjusting remote commander.
   4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
   5. Select the page: D address: 17, and set the data to 06 [07].$^{\text{Note 1}}$ (Setting of the REC key forbidden accept mode)
   6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)
   7. Turn off the power.

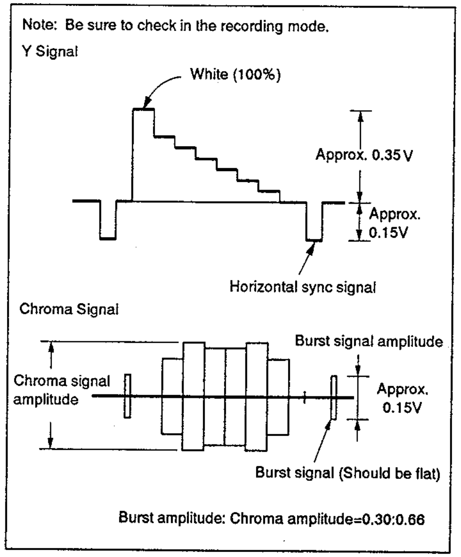
Note 1: No mark : AEP, UK model
[ ] : E, Australian, Tourist model (Except CCD-TR750E)

3-1-5. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. CAMERA Input

Connect the oscilloscope to Pin ⑬ of CN203 on VS board, and check that the sync signal of the Y signal is approximately 0.15 Vp-p and that the amplitude of the video section is approximately 0.35 Vp-p. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to Pin ⑰ of CN203 on VS board, and check that the burst signal amplitude of the chroma signal is approximately 0.15 Vp-p and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used in the adjustment are shown in Fig. 7-3-2.

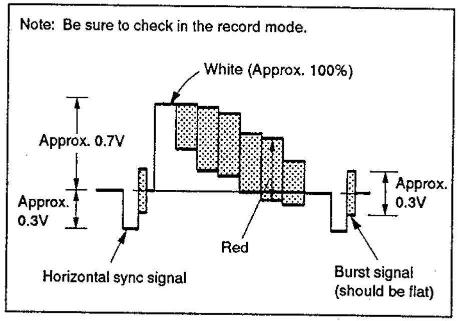

Note: Be sure to check in the recording mode.

Y Signal
White (100%)
Approx. 0.35V
Approx. 0.15V
Horizontal sync signal
Chroma Signal
Burst signal amplitude
Chroma signal amplitude
Approx. 0.15V
Burst signal (Should be flat)
Burst amplitude: Chroma amplitude=0.30:0.66

Fig. 7-3-2. Color Bar Signal of Pattern Generator

2. VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the sync signal amplitude of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30:0.66.
The video signal (color bar) used for adjusting the VTR section is shown in Fig. 7-3-3.


Note: Be sure to check in the record mode.

White (Approx. 100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 7-3-3. Color Bar Signal of Pattern Generator

3-1-6. Alignment Tape

The following table lists alignment tapes which are available.
Use the tape specified in the signal column for each adjustment.

If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record-ing mode	Tape type	Tape speed	Recording contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for 1 MHz tape path adjustment		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	LP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	LP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Operation check (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. } Repeated 4 times 14 kHz 20 sec. Color bar section 1 kHz 4 minutes	Checking operations
Operation check WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Operation check WR5-4CL	L	MP	LP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation		
Operation check WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Operation check WR5-9CS	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz (L+R: 1.5 MHz ± 60 kHz DEV L–R: 1.7 MHz ± 30 kHz DEV) Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 minutes	AFM stereo Checking operations

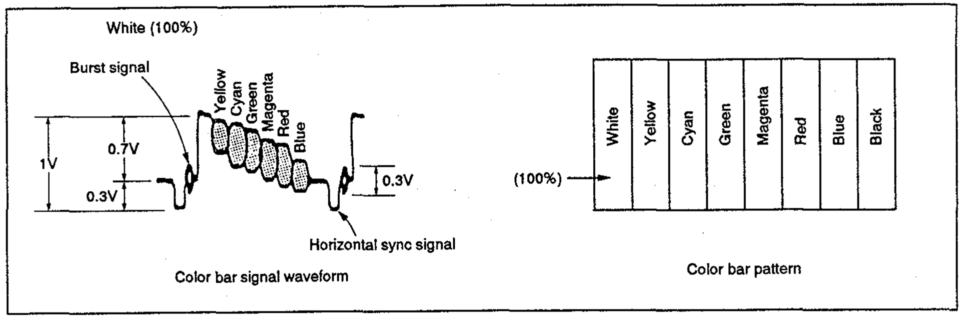
Note: Recording mode
L ·············· Normal (Original) mode
E ·············· hi8 (hi band) mode

Tape type
MP ············ Particle type metal tape
ME············ Evaporated type metal type

Table 7-3-1.

Fig. 7-3-4. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75 Ω)



Color bar signal waveform

Color bar pattern

Fig. 7-3-4. Color Bar Signals of the Alignment Tape

3-1-7. Input/Output Level and Impedance

1. CCD-TR530E/TR550E/TR570E/TR650E,
   CCD-TR750E (AEP, UK model)

S video output (CCD-TR650E/ TR750E)	4-pin mini DIN Luminance signal: 1 Vp-p, 75Ω , unbalanced, sync negative
Video output	Phono jack, 1 Vp-p, 75Ω , unbalanced, sync negative
Audio output	Phono jack, –7.5 dBs, (at load impedance 47 kΩ) impedance less than 2.2 kΩ

2. CCD-TR750E (E, Australian model)

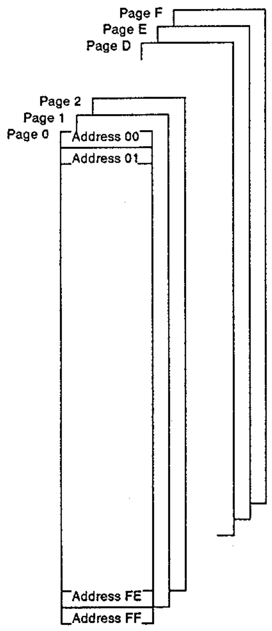
S video input/output	4-pin mini DIN, Luminance signal: 1 Vp-p, 75Ω , unbalanced, sync negative Chrominance signal: 0.286 Vp-p, 75Ω , unbalanced
Video input/output	Phono jack, 1 Vp-p, 75Ω , unbalanced, sync negative
Audio input/output	Phono jack, Input: –7.5 dBs, input impedance more than 47 kΩ Output: –7.5 dBs, (at load impedance 47 kilΩ), impedance less than 2.2 kΩ

3-1-8. Service Mode

1. Setting the service mode

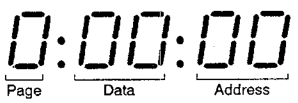
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.
The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

(1) Service LANC memory map

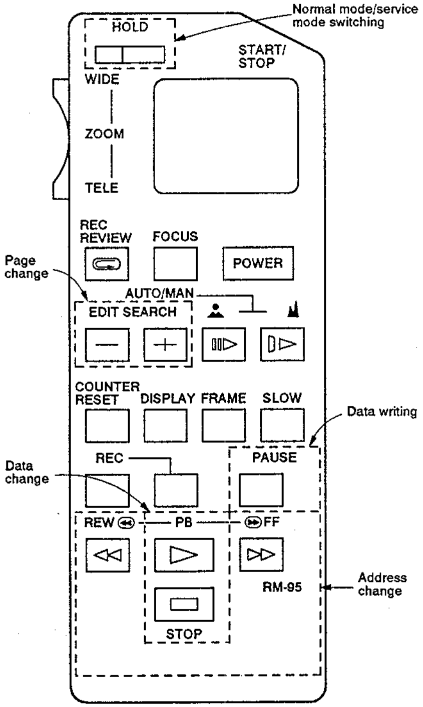

Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF

Page	Page Layout
0	
1	D page write protect setting/release
2	Mode controller RAM, I/O
3	Mechanism controller RAM, I/O
4	
5	
6	Shared by camera section
7	Camera controller RAM, I/O
8	
9	
A	2 bytes data display
B	
C	
D	VTR EEPROM (Note 1)
E	
F	Camera EEPROM (Note 2)

LCD Display of the Adjusting Remote Controller


0:00:00
Page
Data
Address

Adjusting remote commander RM-95 (J-6082-053-A)


Normal mode/service mode switching
HOLD
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page change
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data writing
REC
PAUSE
Data change
REW
PB
FF
STOP
RM-95
Address change

Note 1: The data of this page is written in the EEPROM (IC501 of VS board).
Note 2: The data of this page is written in the EEPROM (IC601 of VC board).

(2) Category codes
This unit uses category codes for pages 2 and 3.
(Example)

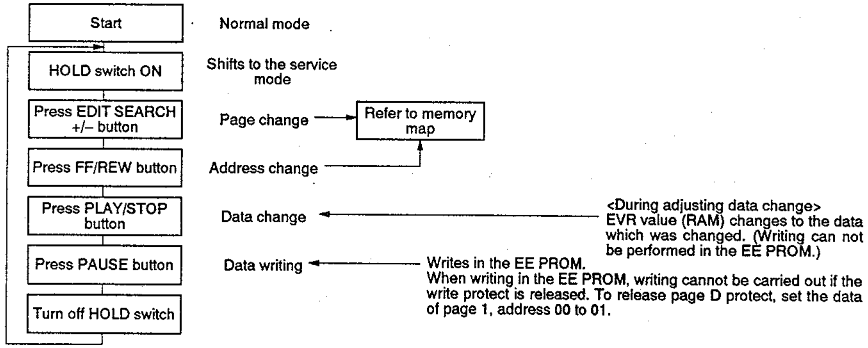
Specification of	Page 2	Category 01	Address 47

Page 2 is the mode controller
Page 3 is the mechanism controller

The actual category and address are specified by the adjusting remote commander as follows.

Order	Page	Address	Data	Procedure
1	2	00	01	Select category 01 using the data of page 2, address 00. From here onwards, category 01 will be selected at page 2 until the data of page 2, address 01 is rewritten.
2	2	47		As the data of page 2, address 00 is 01, select page 2, address 47 to select page 2, category 01, address 47. (The data of this address is the battery voltage A/D conversion value of the mode controller input.)

[Shifting to the service mode using the adjusting remote commander]


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press EDIT SEARCH +/– button
Page change
Refer to memory map
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch

<During adjusting data change>
EVR value (RAM) changes to the data which was changed. (Writing can not be performed in the EE PROM.)

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release page D protect, set the data of page 1, address 00 to 01.

Command Name	Command Function	Normal LANC Command
Page Up	Page+1	Edit Search+
Page Down	Page–1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address–1	Rewind
Data Up	Data+1	Play Back
Data Down	Data–1	Stop
Store	Writes data in the EEPROM, RAM	Pause

(3) Additional note on adjustment
After the completion of the all adjustments, cancell the adjustment mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) Return data of the address: 00 on page: 1 to 00. And when data on page: 2 is changed, return the data to the original condition.

2. Page D write protect

Release/set the page D write protect.

Page 1	Address 00

Data	Function
00	Normal (Write protect condition)
01	Release the write protect

3. Test mode setting

Set/release each test mode. Release the protect (Page: 1, Address: 00, Data: 01) before setting the data.

Page D	Address 02

Data	Function
00	Normal
01	Test mode 1 Various emergency prohibitions and releases Drum, capstan, loading motor, reel, tape top and end, DEW SP/LP automatic discrimination prohibition, manual switching, 5 minutes pause release prohibition Power off prohibition/release by battery end
02	Test mode 2 Not used
03	Test mode 3 Track shift Performs the track shift playback Rear lock distinction prohibition during PB SP/LP automatic discrimination prohibition, manual switching
04	Test mode 4 Rear lock mode Performs rear lock playback SP/LP automatic discrimination prohibition, manual switching

※ For page D, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (6.3 Vdc).

※ Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander.

4. Emergency code

Fault (error) symptoms can be checked.

Page D	Address E4

Last emergency code
······Last error code generated (This data will be renewed each time an error occurs.)

Page D	Address E8

2nd emergency code
······2nd error code generated

Page D	Address EC

First emergency code
······First error code generated

※ Be sure to rewrite the data of addresses E4, E8 and EC to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

Code	Error Condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Reel errors at other times
04	Capstan error
05	FG error during drum start up
06	PG error during drum start up
07	FG error during normal drum conditions
08	PG error during normal drum conditions
09	Phase error during normal drum conditions

5. Emergency mode

The operation mode can be checked during faults.

Page D	Address E5

Last emergency mode
······The operation mode when the last error is generated
(This data will be renewed each time an error occurs.)

Page D	Address E9

2nd emergency mode
······The operation mode when the 2nd error is generated

Page D	Address ED

First emergency mode
······The operation mode when the first error is generated

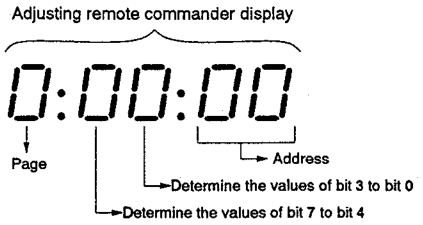
※ Be sure to rewrite the data of addresses E5, E9 and ED to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the adjusting remote commander after setting the data.

Code	Error Conditions
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
26	X1
27	1/5 SLOW
31	UNLOADING
46	CUE
56	REVIEW
62	STOP TAPE END
66	X2
67	FRAME
72	STOP TAPE TOP
83	REWIND
85	REC REVIEW (+)
95	REC REVIEW (–)
97	–PB PAUSE
A2	EMERGENCY LOADING
A5	EDIT SEARCH (+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH (–)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

6. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".


Adjusting remote commander display
0:00:00
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote controller display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(c)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ→	E(E)	1	1	1	0
	F(F)	1	1	1	1

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

7. Battery voltage check

Page 2	Category 01	Address 47

Display Data	Battery Voltage
F0	Approx. 10.6 Vdc
E0	Approx. 9.9 Vdc
D0	Approx. 9.2 Vdc
C0	Approx. 8.5 Vdc
B0	Approx. 7.8 Vdc
A0	Approx. 7.1 Vdc
90	Approx. 6.4 Vdc
80	Approx. 5.7 Vdc
70	Approx. 5.0 Vdc

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	47		The battery voltage can be discriminated by the display data.

※ Voltage measurement accuracy is approx. ± 10%.

8. Mechanism controller input/output check

Page 2	Category 00	Address 83

Bit	Input/Output Signal	Condition
0		
1	E/L DET	"1"=Hi8, "0"=Normal
2	SP/LP DET	"1"=SP, "0"=LP
3	CLOG DET	"1"=Clog detected, "0"=Others
4	REC PROOF	"1"=Recording prohibited, "0"=Recording possible
5	TAPE PREEND	"1"=Tape preend, "0"=Others
6	DEW DET	"0"=Condensation occured, "1"=Others
7	CASSETTE IN	"0"=No cassette

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	83		The condition of each input signal can be discriminated by differentiating the bit value of the display data.

Page 2	Category 00	Address 84

Bit	Input/Output Signal	Condition
0	VA PB MODE	"1"=PB, "0"=REC
1	RP PB MODE	"1"=PB, "0"=REC
2	JOG	"1"=Variable speed playback, "0"=Others
3	ME/MP SW	"1"=ME tape, "0"=Other tape
4	Hi8 MP SW	"1"=Hi8 MP tape, "0"=Other tape
5	SERVO OPERATION	"1"=SP mode, "0"=LP mode
6	VIDEO MUTE	"1"=Mute, "0"=Video output
7	AUDIO MUTE	"1"=Mute, "0"=Audio output

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	84		The condition of each signal can be discriminated by differentiating the bit value of the display data.

9. Mode switch and CC DOWN switch check

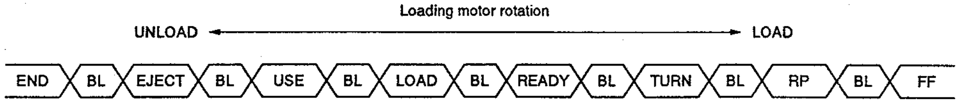
The mode switch position (mechanical section condition) can be checked.

Page 3	Category 00	Address E9

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
MSW 2	MSW 1	MSW 0	CC DOWN				

				DATA	POSITION	FUNCTION
0	0	0	0/1	E*/F*	BL	Interval of each position
0	1	1	1	7*	END	FULL END processing (T side lock removal)
0	0	1	1	3*	EJECT	Cassette compartment ejection
1	0	1	1	B*	USE	EJECTED (Unskate end)
0	0	1	0	2*	LOAD	LOADING (Skate in)
1	0	0	0	8*	READY	NORMAL STOP position
1	1	0	0	C*	TURN	OFF of pinch roller only with STOP↔FF/REW (oscillating position)
0	1	0	0	4*	RP	PB, REC, RVS, REV, CUE
0	0	0	0	0*	FF	FF/REW

*: Don't care



Using method:

Order	Page	Address	Data	Procedure
1	3	00	00	Specification of category 00
2	3	E9		The mode switch position and CC DOWN switch condition can be discriminated by the display data.

10. Tape top/end sensor check

Page 3	Category 02	Address 0A

Display Data	Tape Top/End Sensor Condition
00	Tape present (Middle of tape)
01	Tape end
10	Tape top
11	No tape

Tape end sensor condition
Tape top sensor condition

"0"=Non active (Not receiving light)
"1"=Active (Receiving light)

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	10	Request for tape top/end sampling operations
3	3	0A		The condition of the tape top/end sensor can be discriminated by the display data.

11. Version of mechanical control microprocessor

Page 3	Category 02	Address 0B

Display Data	Microprocessor version
01	Version 1

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0B		The microprocessor version can be discriminated by the display data.